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THE ROLE OF LANDSCAPE ARCHITECTS IN EARTHQUAKE RECOVERY AT THE COMMUNITY SCALE
The unique patterns, arrangements, colours, fabrics, and stitching techniques make each patchwork quilt different. Some patchwork patterns might be symmetrical; some might be ad hoc and random; some might be linear like a checkerboard; and others might form a picture. In many cases, quilt patterns will be arranged so that there are many smaller focal points arranged around a centre focal point. Patchwork designing is the art of arranging, designing, and managing a cluster of multiple patches. Patchwork designing seeks to achieve a patchwork design that is well structured, logical, and contributes harmoniously to the overall patchwork patterns. It involves identifying the individual qualities and combinations of each patch: their colour, size, and shape; their exact arrangement; and the qualities of the stitching that binds them together. Patchwork designing takes into consideration the vision of the quilt planners, to ensure their area of patchwork contributes to the envisioned character, style (and function) of the entire quilt.

When thinking about the district/community scale of landscape post-disaster in terms of our patchwork quilt, we are thinking about the implications for whole clusters of patches - whether those clusters are residential neighbourhoods, central city business, retail, and entertainment districts. While patchwork planning refers to the strategic design and layout of the region as a whole, patchwork designing is referring to the practice of designing development patterns at the community scale. In New Zealand, this practice is most commonly referred to as Structure Planning or Comprehensive Master Planning. Some landscape architects who practice at this scale will specialise as Urban Designers. This is a scale where there are multiple land uses and landscape types that need to be strategically arranged in a way that is functional for the community and respectful of resources and the environment. It typically involves designing a community development across its transect; from its commercial centre out to its residential and recreational areas.

The practice of structure or master planning is critical to ensuring that any changes that occur throughout the recovery period are undertaken as an opportunity to build back better or perhaps more importantly, that changes support the balanced regeneration of social, cultural, economic, and environmental well-being. The post-disaster recovery situation adds even more complexity and pressure to the process of developing a Structure Plan. At the very least, it can be expected that it will involve a fast-tracked version of general practice. Nonetheless, it is a vital step in the recovery and should not be overlooked.
FIGURE 4-1: PATCHWORK DESIGNING FOCUSES ON THE ARRANGEMENT OF A SECTION OF THE PATCHWORK (QUILT BY ROBIN CLARKE)
THE CRITICAL ROLE OF LANDSCAPE ARCHITECTS IN REGENERATING OUR COMMUNITIES: GENERAL PRACTICE

WHY IS IT CRITICAL THAT LANDSCAPE ARCHITECTS ARE INVOLVED IN REGENERATING OUR COMMUNITIES?

While landscape architects are just one of the multiple disciplines that should be involved in the holistic structure planning or master planning process, they are most effective in key roles of leading the process as demonstrated by the case studies later in this chapter.

In the process of developing a master plan or structure plan, landscape architects have the ability to:

• translate the visions of the stakeholders into spatial solutions;
• inform stakeholders about the latest technologies, sciences and best practice in urban development;
• facilitate discussions and workshops with the community and stakeholders
• suggest ideas that are innovative and new
• understand, visualise and graphically represent a combination of stakeholders ideas and values;
• and to draw and write the city’s ideal future as a comprehensive development plan for the future, that can be interpreted by all.

Landscape architects understand the ideal structure of a city and are therefore familiar with the different types of structure planning and the type of development they should be aiming to achieve in each part of the city. This is all part of understanding the form and function of the city as a whole, which involves taking a step back to think about how the cluster sits within the entire patchwork quilt. In this way a secondary focal point in the overall patchwork (satellite centre) acts to emphasise the central master piece (central city) as opposed to detracting from it.

Furthermore, landscape architects recognise the development of master plans and structure plans as being an important part of planning for community resilience (Allan & Bryant, 2010; Rung et al., 2011). Penny Allan and Martin Bryant, at the School of Architecture in Wellington, have recently been researching the critical role of open space in earthquake recovery. They coincidentally prepared the first part of the research as a conference paper for the 2010 New Zealand Society for Earthquake Engineering Conference last year before the first Canterbury
earthquake, named *The Critical Role of Open Space in Earthquake Recovery: A Case Study* (Allan & Bryant, 2010). The paper overlays theories of urban design, recovery planning and urban resilience, and proposes that the successful integration of recovery planning and urban design lies in a shift of thinking that sees a city's open spaces as being vital to disaster recovery situations. They have used the earthquake event of 1906 in San Francisco to highlight the ways in which the city's open space network of wide streets, squares and parks, were utilised in the recovery period following the earthquake. Their future research findings are going to be critical to the idea of structure planning for earthquake resilience.

**A LANDSCAPE ARCHITECTS APPROACH TO STRUCTURE PLANNING AND MASTER PLANNING**

Landscape architects approach master planning and structure planning in a way that ensures communities meet objectives for both high quality sustainable design and sense of place and cultural identity. Their design-led, place based approach is most effective for achieving these objectives.

*Design-Led Approach to Structure/Master Planning*

British experience suggests that design is an essential element in achieving sustainable development, as it helps ensure that the places created through structure planning type processes are attractive, usable, durable, and adaptable (Wong et al., 2005). This implies the preparation process is led by designers (such as landscape architects) as opposed to being led by engineers, surveyors or legislative planners. A design-led approach, rather than one that is dictated by standards, helps to ensure new development contributes to maintaining and enhancing landscape quality (DOE, 2011). Often this may mean that some aspects may be compromised to ensure others are addressed, creating a comprehensive strategy that is sustainably balanced, and which fulfils the objectives of all aspects of the structure plan (Ayres et al., 2010).

Successful application of a design-led approach to Structure Planning requires:

- An appreciation of the surrounding context, and understanding of the urban design principles underpinning successful Structure Plans.
- An integrated approach that brings together aspects of the urban environment including planning, urban design, community, infrastructure, environment, resources, transport, culture and economy.
- Positive dialogue between developers, local community and other stakeholders, including district councils.

Source: (DOE, 2011)
Those typically involved in preparing the master plan or structure plan document using a design-led approach include: a leading design team of urban designers and land-use planners (specialised landscape architects), a consultant team of engineering, transport and surveying consultants (as well as other scientists and experts), and local authority representatives. These teams are obviously in regular contact with the community and respond to stakeholder preferences.

**Place-Based Approach**

Landscape architects also implement a community-driven, place-based approach to community planning. A place-based approach refers to a bottom-up concept as opposed to a top-down approach to the planning process. A place-based approach supports the wider recognition of the need for the master plan/structure plan to respond to specific community needs and objectives as opposed to a prescribed set of standardised objectives.

Actively engaging the public is crucial to achieving a sustainable and holistic disaster recovery is frequently emphasised in the disaster recovery literature (Michaels, 2001). Once the relief period of saving lives is over, community participation that instils a sense of ownership of recovery initiatives is essential to enabling greater sustainability of the long term recovery. It is one that involves the active engagement of a diversity of stakeholders in order to create a sense of community ownership that is vital to achieving implementation of sustainable urban development. Community participation in this context goes beyond a mere ‘consultation’ process whereby the affected population is asked for its opinion on a certain topic, but it has no decision making powers and no guarantee that its views will be taken into consideration. Rather, effective community participation is considered as being a high level of interactive participation in which communities have decision making powers, and there is a focus on empowering communities to take local initiatives acting independently to recover their environment. Thus,

“*recovery assistance that supports local initiatives can be a more effective and efficient means of aiding affected populations... (whilst conversely to this)... assistance that does not build upon these efforts, risks impeding self-help activities, fostering dependency and diminishing potential for sustainability.*”

(ibid p. 16).

An important factor to be aware of with the place-based, bottom-up approach is that a development can evolve in isolation from wider national and international goals. For this reason, landscape architects should try to use both bottom-up approach that fits within a top down framework (Ayres et al., 2010). The Greensburg Sustainable Comprehensive Master Plan case study is one in which landscape architects were a part of a place based approach to post disaster structure planning (which was supported from the top-down).
THE ROLE OF LANDSCAPE ARCHITECTS IN EARTHQUAKE RECOVERY

THE PROCESS OF DEVELOPING A STRUCTURE PLAN OR MASTER PLAN

Features that may be represented in, and managed through, a structure plan, include:

- the type and location of land uses that will be permitted, including development type, density and staging
- multi-modal transport links and connectivity
- the location, type, scale and staging of infrastructure required to service an area, including stormwater, water and sewerage
- landscape character and amenity
- natural hazards
- the provision of community facilities and reserves
- the protection of sites, features or values (cultural, ecological, historical or amenity related)
- areas of contamination and the rehabilitation standards required.

(Source: www.qualityplanning.org.nz)

There is no one set process to developing a structure plan or master plan. Even in a normal situation (not post-disaster), the process will depend on the scale and complexity of the area. Regardless of the exact procedure, the structure planning process should incorporate the following components:

- Scoping and project planning
- Stakeholder identification and consultation - throughout the process
- Research and information analysis
- Generation and evaluation of alternatives and identification of preferred options
- Finalisation of plan and implementation

(Source: www.qualityplanning.org.nz)

A detailed example of a post-disaster structure plan process led by landscape architects in disaster recovery is demonstrated by the Greensburg Sustainable Comprehensive Plan Process (see GPE Box 4-1)
In basic terms as demonstrated in the Greensburg example, the process for post-disaster structure planning should involve the following procedure:

- **Goal Setting**: The development of a programme that provides a clear understanding of what is being designed. This includes a definition of intent which clarifies the scope, goal and objectives of the master plan. This stage should consider previous plans for the area and be a continuation of the strategic urban development planning stage.

- **Establishing the facts**: A detailed analysis is carried out of the area that is to be planned. This needs to look at the wider context and include a detailed description of extent of damage caused by the disaster. It involves forming a detailed and holistic understanding of those factors and processes (natural and cultural) that currently and potentially should influence the area and future development.

- **Testing scenarios**: Through a series of workshops and design charrettes that actively involve a variety of stakeholders and designers (such as LAs), a number of master plan scenarios that demonstrate the combined goals and factual information should be tested. This stage could also be carried out in an urban design competition situation, as demonstrated in Manchester City.

- **Community consultation**: The community should once again be engaged in critiquing the scenarios with a purpose of distilling the best combination of preferred options.

- **Approval**: An urban design panel consisting of a variety of stakeholder representatives are given responsibility for approving the final scenario concept based on the community preferences. This is likely to be a combination of the tested scenarios.

- **Refining the Master Plan details**: The Master Plan design team and other consultants are then given the task of refining the master plan details based on the community and urban design panel feedback.

- **Comprehensive Master Plan activated**: Implementation of the plan and reconstruction can begin according to the priority actions in the plan. The master plan may or may not become a statutory document depending on the city's legislative structure. Note: In many cases, particularly in New Zealand, the Comprehensive Master Plan is there to inform the City (or District) Plan, but has no statutory power otherwise. This is why it is very important that stakeholders feel a sense of ownership and responsibility for the plan, otherwise the plan is unlikely to be effectively implemented.
THE ROLE OF LANDSCAPE ARCHITECTS IN EARTHQUAKE RECOVERY

THE DISTRICT/COMMUNITY SCALE ISSUES

The earthquakes have caused a variable issues for different communities across Christchurch. For this reason, the community scale recovery issues can be broken down into 3 categories:

1. ‘Recovering Communities’: the communities that are able to rebuild and are going through the process of recovery. The issue for these areas is about rebuilding: How to they rebuild in a way that is better than before? What is the community going to do while decisions are made about how to build back better? How does the community live in a construction site when building is underway?

2. ‘Displaced Communities’: the communities that are unable to rebuild on their land and must be relocated to other parts of the city. For these communities, the issue is about relocation: how do help these communities rebuild their lives in a new location? What are the issues of relocating these communities to new green-field developments?

3. ‘Undamaged Communities’: For those almost forgotten communities whose neighbourhoods and centres were not damaged in the earthquake, the issue it not so much about recovery or rebuilding as it is about managing sudden growth. With thousands of people unable to work and live their everyday lives in their own neighbourhood centres or the central city, the undamaged parts of the city are being swamped with people and new development. Rapid, unplanned growth is occurring around these centres and the western city margins, especially to accommodate displaced businesses from the central city. How should we guide rapid development in a way that is sustainable and contributes to strengthening the character and quality of the existing neighbourhood and greater city? How do they ensure that they will still be desirable urban centres when the rest of the city has recovered and pressures are relieved? And how do hasty green field development decisions affect the serious issue in Christchurch of urban sprawl?

OVERVIEW OF CURRENT PRACTICE FOR ADDRESSING THE ISSUES

While involving landscape architects in decisions about which communities to replan was an important discussion for chapter three, this chapter has a focus on current practice at the community scale, and therefore puts this discussion aside. So far, a considerable amount of progress has been made at this scale for those communities that have been identified as requiring a recovery plan. Landscape architects have been actively involved in cases where structure and master plans are being developed, and their presence has influenced some very posi-
tive plans. CERA has delegated the local authorities to address the worst affected community scale urban centres and neighbourhoods (as selected by CERA) in their respective municipal areas. For those community recovery plans that are currently underway, local authorities and the master planning teams they have contracted, have been making some good progress. So far, Christchurch City Council has been incredibly busy developing the Central City Plan, and has more recently developed the Suburban Centres Programme to begin recovery master planning in selected damaged suburban neighbourhoods. The Waimakariri District Council has had a head start on Christchurch with most of the damages occurring there in their district in the September 2010 earthquake, and is well on their way to completing the recovery master plans for their communities in Kaiapoi and Pines Beach.

However, survey results showed that many landscape architects still believe they are not always effectively engaged at this scale. While 80% of respondents thought that LAs should contribute high levels (20% thought they should contribute moderate levels) of involvement to post-disaster structure planning, only 38% that thought LAs had high levels of contribution at present. However, the survey also revealed that structure planning is the most likely type of contribution that landscapes architects make to post-disaster recovery, according to types of actual involvement. This could mean that landscape architect’s perception of their actual involvement as a discipline is mistaken, or for those few that are involved, structure planning is the most likely activity in which they are engaged. This result can be expected given the stage in the process of Canterbury’s recovery where planning at this scale is most likely.

The rest of this chapter looks at how these issues are currently being addressed in Canterbury and what other countries have done to address similar issues in the recovery of their communities after major disasters. The chapter has a focus on the role of landscape architects in regenerating our ‘Recovering Communities’, and ‘Displaced Communities’. As for the ‘Undamaged Communities’, the council have not yet made any actions towards their comprehensive re-plan despite rapid growth and pressure on current infrastructure. It is unclear at this stage whether they intend to do so. In the mean time, Addington and Hornby are experiencing a major boom in population and development growth, while Riccarton continues to strain under the pressures of an influx of people.

THE ROLE OF LANDSCAPE ARCHITECTS IN REGENERATING THE ‘RECOVERING COMMUNITIES’: THE CANTERBURY RECOVERY AND GOOD PRACTICE EXAMPLES

For the communities whose neighbourhoods and urban centres suffered major damages due to building structure failure as opposed to ground failure, the decision has been made to rebuild them with newer, stronger buildings and infrastructure. It is the Recovering Communities that have had the most immediate focus in the Canterbury recovery to date (as opposed to displaced and undamaged communities). The following section outlines some of the recovery activities underway for addressing recovery communities in Canterbury and how landscape
architects are currently involved. International case study examples are used to demonstrate the differing (and potential) role of landscape architects in critical roles of regenerating recovering communities in other countries.

CENTRAL CITY MASTER PLANNING

When a major disaster destroys the Central City as was the case for both Christchurch and Manchester, the consequences affect the entire greater city. All of a sudden there is no longer a place for central business; there is no longer a place for entertainment; there is no longer a place for congregation of cultures; there is simply no longer a heart of the city and the region. Manchester is a city that has been through a similar situation to Christchurch. While Manchester’s disaster was a bomb that affected only the central business district, the recovery master planning process is on a scale that is comparable to the Christchurch Central City, and the implications for recovering a central business district were very similar.

Manchester City Master plan (see GPE Box 4-2 overleaf)

The Manchester City local authorities decided that instead of undertaking the comprehensive master planning process themselves, they would hold an urban design competition which would facilitate the master planning process for their central city. The winners of the competition were London based landscape architecture firm EDAW, who went on to lead the master planning process for the city (in collaboration with other specialists). The results of their process have been very positive, with the city’s heart being regenerated far beyond it’s pre-existing condition. A distinctive characteristic of the EDAW Master plan is that from broad urban design principles through to detailed architectural solutions the Master plan sets the aspiration for nothing short of the highest quality of design (Williams, 2000). The success of Manchester City’s redevelopment after the 1996 bombing is proof of how landscape architects generating successful and integrative Master plans for post-disaster recovery (www.rudi.net/node/17478).

The Christchurch Central City Plan (see CRE Box 4-1 overleaf)

The Christchurch Central City Plan is a council-led plan in which landscape architects have more of a consulting role than a leading role in the process. It is positive to see in the draft Plan that landscape architects and other urban specialists have had a significant influence in the development of the Central City Plan. Two large landscape architecture/urban design companies (Gehl Architects from Copenhagen and Boffa Miskell from Christchurch) were contracted by the council to assist in the plan development, as well as a number of individual consultants (such as landscape architect Dr. Jacky Bowring who wrote the chapter on Remembering). The Plan has succeeded in acknowledging the idea of a Transitional City, which is an important concept in disaster recovery, and one in which landscape architects have the potential to specialise (as discussed further in the next chapter). Without critiquing the plan in any great depth, the main feedback from a landscape architects perspective is that the plan still fails to integrate well with the wider city. This is likely to be a symptom of the fact that the decision to move ahead quickly with the Central City Plan before strategically considering the bigger picture and the wider city networks.
On June 15, 1996, Manchester City Centre was destroyed in a terrorist attack carried out by the Provisional Irish Republican Army (IRA). The bomb was targeted at the city’s infrastructure and economy and caused widespread damage to its commercial core. Prior warning of the bomb allowed police to evacuate 80,000 people out of the central city before it exploded, and consequently no fatalities occurred although 212 people were injured. In total, 49,000m² of retail space and 57,000m² of office space were put out of use. Rebuilding was completed in 2005 estimated at a cost of £1.2 billion (NZ$2.35 billion).

KEY NOTES ON THE RECOVERY PROCESS

- Structures for recovery program was initiated in the first week and in place within the first month
- Aim from the outset was not to simply reinstate the urban fabric but to revitalize and reinvigorate the city centre as a whole
- Comprehensive redevelopment was seen as being beyond the local authority’s capacity and experience, so a specialist task force was set up to focus on the renewal programme. The team was made up of local authority and private sector, most of who had already established working relationships which was considered crucial for its operational effectiveness.
- Existing working relationships between local authorities and the private sector were considered crucial to the operational effectiveness of the specialist task force
- Delivering the strategic framework for the recovery programme proved to be complex and collaborative process and occurred as an afterthought to the master plan coordination.
- Key instruments: Appeal fund set up to support affected businesses; an international urban design competition to facilitate master planning response; and a task force to coordinate the entire rebuild process

URBAN DESIGN COMPETITION

A two stage design competition was launched to facilitate the master planning process that would regenerate Manchester’s Central City. To manage the process, the task force retained a panel of professional advisers that formed the competition jury. Due to time constraints and other management issues, the process was largely internally managed, with the public involvement largely restricted to set consultation exercises at key points. Competition brief was for:

“a development and investment framework which creates an architecturally distinctive core... is responsive to access needs... physically and socially integrated with the rest of the city... maximises private investment and stimulates economic activity... promotes the widest possible range of opportunities... minimises the risk and fear of crime... and where activity can take place at most times of day and night”

The eventual winner and runner up of the urban design competition were initially seen as being both the most popular and the least popular schemes at this stage, illustrating the implicit tension between conservative and radical solutions. The London based landscape architecture company EDAW (now AECOM) was the winner of the competition. The winning master plan was publicly perceived as the realistic and somewhat conservative solution.

The Master plan was driven by 6 strategic objectives, which included the creation of a quality core, “fit for the 21st century”, and the development of an integrated transport strategy. (Williams, 2000)
THE CENTRAL CITY (RECOVERY) PLAN

The CBD of Christchurch is one district that has suffered a combination of both ground failure and building structure failure more than 1000 buildings. While the CBD is only a very minor land area by comparison to the region, the consequences of the central city destruction have and will be huge for the identity and function of the Canterbury Region in both the short term and the long term. The Central City is a base for 52,000 workers and more than 6000 businesses that have had to be relocated while reconstruction takes place. Thus, one of the first decisions made in the recovery period, was to begin immediately developing a Central City Plan to guide the redevelopment of Christchurch’s destroyed CBD.

The Central City Plan outlines a vision that covers the area within the four avenues and looks at what kind of public spaces and buildings are desired; how people will move around the Central City; what cultural, recreational and entertainment activities will be enjoyed in this area; and how to support businesses returning to the Central City. It outlines an action plan and details of specific projects, as well as an accompanying document of proposed plan changes.

THE PROCESS

The process of developing the plan has been squeezed into an incredibly tight time frame of only 9 months. The Christchurch City Council is leading the process and has contracted a range of consultants to aid in the process. The contracts for Urban Design and Planning took up 17% of the overall budget.

The Council has undergone an extensive but fast tracked public consultation programme which they named “Share an Idea” that received and processed more than 100,000 ideas from the Christchurch community and its friends. The project has been commended as being possibly the biggest public consultation ever undertaken in post-disaster recovery.

The City Council has recently released the first draft for public review and is awaiting public feedback before progressing with finalising the plan (to be completed by December).

(ccc.govt.nz)
SUBURBAN/SMALL TOWN MASTER PLANNING

*Christchurch’s Suburban Centres Council-led Master plan (see CRE Box 4-2)*

Master planning in suburban centres differs from master planning in the CBD as it usually only concerns a single community. For those communities that have been given the go ahead to rebuild, the Christchurch City Council has developed a Suburban Centres Programme with the intentions of carrying out master planning for the worst affect commercial centres in Christchurch’s suburbs. For those moderately damaged centres that don’t qualify for a master plan they will be placed in a case management work stream, whereby a case manager will be assigned to assist in planning and recovery advice on a case by case basis.

Sydenham and Lyttelton were two of Christchurch’s community centres where many of the buildings were destroyed in the earthquakes. They were both the first communities to get council-led master plans which would guide their recovery. Auckland based urban design company Urbanismplus, has been contracted by the CCC to lead the design element of the process, including the facilitation of the community workshops and meetings. Urbanismplus has since subcontracted a lot of the design work to Christchurch based landscape architect Craig Pocock at Design Environment.

*Greensburg Sustainable Comprehensive Master plan (see GPE Box 4-3 overleaf)*

Comparable in size and function to the suburban centres of Christchurch, Greensburg in Kansas is a case study that demonstrates another example of landscape architects in a similar role of recovery master planning. On May 4th, 2007, a devastating tornado hit the small rural town Greensburg and the Kiowa County in Southwestern Kansas. The 2.7km wide tornado with 333kph winds ripped the town apart, destroying its infrastructure and over 90% of its buildings. In the days following the disaster, several community members had the notion of rebuilding the already struggling town in a sustainable, “green” manner. After the idea was publicised to the community and local council at the first community meeting, it was decided that Greensburg would seize the opportunity of rebuilding, and regenerate itself as “America’s model green community”. After the community gained support from the Greensburg City Council, BNIM architects (a company of urban designers, landscape architects and architects) was then contracted to lead the recovery process, alongside sustainability expert John Picard. Recovery planning involved first developing a Long Term Community Recovery Plan and then a Sustainable Comprehensive Master plan. 4 years on from the disastrous tornado event in 2007, Greensburg is now world famous for its recovery that turned a struggling rural town into a world leading eco-town. With the town tag line: ‘Stronger, Better, Greener!’, Greensburg is now a centre for ecotourism, a showcase for the latest in green technology and a drawing card for new green business. Greensburg Mayor Bob Dixson has a vision of Greensburg becoming “the ecotourism capital of the world”. Greensburg has been frequently used as an exemplary model for recovery and has so far succeeded in proving that disaster can be taken as opportunity when the recovery is managed effectively.
CCC SUBURBAN CENTRES PROGRAMME

The Christchurch City Council has developed a Suburban Centres Programme, with the intentions of carrying out a master planning exercise for the worst affected commercial centres in Christchurch’s suburbs. Council-led master plans are in progress or a shortly to commence for Lyttelton, Sydenham, Stanmore Road/Worcester Street, Selwyn Street; while Aranui, Edgware, Linwood, Woolston and New Brighton are undergoing further investigation.

“The type and scale of a centre, along with the level of damage and disruption sustained during the earthquakes will determine the scope of each centre’s master plan.”

MASTER PLANNING PROCESS

• The process will be a collaborative effort involving the Council, Community Boards, local residents and stakeholders for each centre. Stakeholders include business operators, building and land owners, central and regional government agencies, residents, community groups and any other organisations that have a stake in the local community for each centre.

• The master plan process begins with gathering of technical information, an assessment of the impact of the earthquake and the identification of the key stakeholders for each centre. Once this stage is completed a series of focus group sessions will be held with representatives of the local community, key stakeholders, councillors and community board members. Following this a public ‘hands on’ design and community meeting will be held. The purpose of these meetings is to raise awareness of the master plan and provide an opportunity for the community to identify issues, concerns and aspirations for their centre. The design element of the sessions provides an opportunity to propose, discuss and test ideas for rebuilding and regeneration of the centre.

• A technical ‘inquiry by design’ process follows. The purpose of this is to develop the issues, ideas and aspirations of the community into a draft master plan. Input from experts in all aspects of the development process is included to ensure that the draft master plan is both realistic and achievable.

• The draft master plan will be presented for public consultation and for consideration by the Council and Community Boards. The master plan shall be finalised, after any amendment, with adoption by the Council.

(Source: ccc.govt.nz)

PROGRESS TO DATE:

For Sydenham and Lyttelton the master plan process is now at the stage where drafts have been presented to the public and they are now being refined based on the community feedback. Each of the plans had a focus on six elements: Natural environment; Community wellbeing; Movement environment; Economy and business; Build environment; and Delivery. Without critiquing the Plans in any great depth, they appear to outline a positive and realistic vision for their communities, although there has been some feedback from community members that were involved in the consultation process that the Council still had a dominating role in many of the decisions made.

(Source: ccc.govt.nz)

FIGURE 4-7: ARTISTS IMPRESSION OF THE LYTTELTON MASTER PLAN
CHAPTER FOUR: THE COMMUNITY SCALE

GREENSBURG AND KIOWA COUNTY LONG-TERM COMMUNITY RECOVERY PLAN

As one of the first steps in the process towards a sustainable future, the City of Greensburg and Kiowa County prepared their Long-Term Community Recovery Plan. The plan, which presented the community’s vision, was prepared through the Federal Emergency Management Agency’s (FEMA) Long-Term Community Recovery (LTCR) programme. It was a community driven document that reflected both the priorities of the community and the LTCR planning team, resulting in a prioritised list of more than 40 recovery projects. The Recovery Plan was prepared over a 12 weeks period of intensive community consultation, which included application of the ‘Public Square Process’, community meetings and interviews, a community Design Workshop, and a community Rebuilding Fair. It was in the community Design Workshop and community Rebuilding Fair that landscape architects, urban designers and architects from BNIM Architects were present to offer the community their expertise on sustainable solutions, leadership and design services.

The Greensburg and Kiowa County Long-Term Community Recovery Plan outlined details for more than 40 recommended recovery projects under the categories of: Sustainable (Green) Development; Housing; Economy and Business; Community Facilities and Infrastructure.

Projects were prioritised based on their ‘recovery value’ — High, Moderate and Low. Those projects considered as having high recovery value are those that serve as catalyst projects, important as building blocks for recovery. Moderate recovery value projects are those projects expected to have positive and clear impact on recovery, but by their nature are limited in their scope, span, impact or benefits for the whole community. Low recovery projects may not have direct link to the disaster and its damages, but have identifiable benefits to the recovery in the long term.
THE GREENSBURG SUSTAINABLE COMPREHENSIVE MASTER PLAN

The next step in the recovery, involved the development of the Sustainable Comprehensive Master plan which acts as a guide for the many projects underway in Greensburg over a twenty year recovery period.

The decision made by the people of Greensburg to undergo a comprehensive master planning process as part of their recovery allowed citizens to collaborate on:

- a view of the “big picture” which helped to align community priorities with projects, programs and government;
- coordination of local decision making that supports community visions;
- provision of guidance to landowners and developers giving them confidence to rebuild;
- establishment of a strong fact base from which development decisions could be made;
- inclusion of a broad array of stakeholder interests in discussions about the future;
- building of a strong constituency for the ideas and recommendations of the plan

BNIM Architects and John Picard (architect, “holistic” environmentalist and forerunner of the “green movement”) were retained by the City of Greensburg to complete the expedited Sustainable Comprehensive Planning process. While John Picard played the leadership role as an advisor to the City and liaison to potential corporate partners, BNIM Architects were given the lead role of: facilitating community participation; conducting design analysis; coordinating planning and design recommendations; distilling findings into a legible Sustainable Comprehensive Master Plan.

Greensburg City Council staff members were an integrated part of the planning team, providing ongoing leadership in critical decision making, keeping the community informed and educating city officials and project teams about the plan process. The Plan was produced in 7 months.
Sumner’s Community-led Master Plan

Sumner is one of the badly damaged Christchurch communities that the City Council has decided to put on the Case Management work stream as opposed to the Suburban Centres Master planning programme. Despite the council’s decision however, the Sumner community are determined to develop their own community-led master plan. This will be the first community-led master plan in Christchurch and I am yet to find another example of this occurring in any other disaster recoveries. However it is an unknown process for all of those involved. The following observations were made after being involved in several community meetings:

• Sumner’s case management officer at CCC has responded to the Sumner community by saying the Council is keen to support them in their mission to develop a community-led master plan, but they admit that they have no idea what a community-led master planning really means and how they should go about supporting it. The CCC is apparently currently working on developing a structure, or ‘road map’ to guide the process.

• Multiple community groups exist in Sumner. While all of these groups are advocating for a community-led master plan, these groups are not currently well integrated and are failing to speak with one voice.

• A Sumner based architecture firm have established a Sumner Urban Design Group and have dedicated a huge amount of their volunteered time to establishing a small scale structure plan for Sumner. While this group has made huge progress towards collaborating with the community including other urban development professionals (including landscape architects) in Sumner, to develop a master plan, it seems a portion of the community still feel like they are progressing too fast (they have recently presented their master plan draft). Furthermore, the Urban Design Group has been frustrated by the lack of council support in their efforts.

• The community have decided to form a kind of ‘steering group’ - mainly to act as the representative group of Sumner that is to communicate with the Council from now on. As a group they wish to establish an ideal framework about how they want to operate with the community and the council to initiate the master plan. They plan to continue working with the Urban Design Group’s master plan, but wish to take a step back and understand how they can make the process more collaborative.

In this case it is as much about process and fostering relationships as it is about developing a workable master plan. Current landscape architect involvement has been purely volunteer to date, and has been mostly focussed on the Urban Design Group’s master plan development. I would suggest from my observations that there is potential for the Council to support this community by employing an experienced landscape architect as a neutral consultant to help guide the community in a way that is still fostering a community-led vision and master plan, but one that remains within the framework of statutory planning objectives (as was demonstrated in the Greensburg recovery). A valuable lesson learned from the Kobe earthquake was; that dispatching of expert consultants to neighbourhoods greatly facilitated post-earthquake planning and communication. The consultants played a critical role as facilitators and mediators between residents and local government. The network of consultants was also important, because it allowed for local groups to share their experiences and exchange ideas.”

Olshansky et al., 2006: 370
RELOCATED COMMUNITIES

Those communities that were severely affected by land failure have to face the grim reality of having to be relocated. Until these residents can be permanently relocated in other parts of the city, they remain in either temporary rental accommodation or temporary villages (expanded further in the following chapter). Community master plans are obviously not required for these abandoned areas; however it is expected that the government will require another use for the land in the future when more immediate recovery concerns are dealt with. It is important that these areas are not left abandoned in their damaged state for too long as they soon become 

*ghost towns* that attract crime and are unpleasant for surrounding neighbourhoods - as was experienced after the Northridge earthquake in Los Angeles in 1994 (Olshansky et al; 2006).

As expected, the abandonment of some communities leads to the new development of others, and due to the fact that infill development is a difficult option right now, there is new pressure to allow greenfield developments to occur on the outskirts of the city. Fast tracked plan changes are being made to develop huge greenfield sites into new residential development and commercial business centres, such as the Prestons site, northeast of Christchurch (see CRE 4-3 overleaf).

As reinforced by Olshansky et al (2006) in their study of Kobe and Los Angeles following their earthquakes, there are several problems that need to be considered with this type of development for relocated communities: a) new development areas are often far from the original community location, including schools, jobs, family and friends making it difficult for relocated communities to feel a sense of belonging in their new location; b) the greenfield sites are often on the outskirts of the city and are far from already established satellite centres, contributing to urban sprawl and a less compact city; c) as huge chunks of rapid new development, greenfield developments can often be placeless and generic if not designed in a way that is sensitive to a sense of place and cultural identity that is familiar to the displaced community; and d) brand new houses in this type of development are always more expensive than older homes in established suburbs. In the case for Canterbury, many of the relocated communities are from lower socio-economic neighbourhoods in the east, and there is no way they will be able to afford a brand new house in an exclusive greenfield development. It is important that affordable housing options are available for the relocated communities.

If landscape architects were involved in the big picture decisions it is likely they would push harder for solutions that encourage urban regeneration and development of brownfield sites of existing communities as opposed to greenfield development. However, if developers get the go ahead from the council to begin developing in greenfield areas, then landscape architects would rather be involved than not at all. In fact this is the type of development that landscape architects have some of the highest levels of involvement as implementors of sustainable urban design. I was unable to find any *post disaster* case studies that demonstrated the ideal role of landscape architects in addressing the issues listed above, emphasising (consistent with the literature) their detrimental absence in this type of recovery planning.
Prestons is a 200 hectare green field development proposed in the North East of Christchurch, which has recently been released for development in light of the recent earthquakes. The site is large enough for the development of an entire community of approximately 5000 residents. Prior to the earthquakes, the Prestons site existed outside of the ‘red line’ for city development and was unlikely to be rezoned for many years, if at all. The design and development of Prestons is to be modelled on promoting ‘sustainable lifestyles’. The Australian urban design company Woods Bagot have led the development of the structure plan for the consent stages. Now that the development has been confirmed, tenders are out for new landscape architects/urban designers to lead the development job.
CHAPTER SUMMARY

It is at this scale that landscape architects in Canterbury are most employed by the council in the earthquake recovery, and there has already been a lot of good practice witnessed in the recovery so far. The main focus so far has been on the most badly damaged centres that are able to be redeveloped (based on post-earthquake land-use decisions) and the new private green field development, Prestons.

International case studies have demonstrated that landscape architects are capable of taking on lead roles of post-disaster master and structure planning. Both the Greensburg and Manchester good practice examples had landscape architects in lead roles of workshop facilitation and future sustainable development planning and design.

The draft Central City Plan has occurred within an impressively tight time frame; followed a relatively transparent process; collaborated with a variety of disciplines; involved stakeholder consultation; and made some bold and positive suggestions for future development that will help set Christchurch up to build back better. In this respect it appears to be in line with disaster recovery good practice. Furthermore the section on the Transitional City also demonstrates best practice which suggests that special attention is given to the staging of development. The only real weaknesses in the draft Central City Plan (and most current structure plans in New Zealand for that matter) are: implementation strategies do not guarantee that community objectives will be met through the plan; and current plans are failing to integrate well with the wider city. The latter is thought to be a symptom of the quick decisions made to begin planning at the intermediate scale before first establishing the big picture disaster recovery strategy (discussed in previous chapter). While waiting on big picture decisions would imply that recovery decisions are delayed, the following chapter outlines a solution to coping with effective short term recovery in the mean time, allowing for more time to be taken over critical big picture decisions. It will be difficult to tell if the actual plan is successful until implementation begins.

An issue for the wider city at this scale is the tension between: community-led master plans and council led- master plans; the decision to instead focus on a case management programme; or the decision to not do a master/structure plan at all. Again, a lack of strategic big picture decisions before making judgements about the suburban master plans has meant that some communities are being looked after, while others that are perhaps more in need in the short term in a period of rapid growth (such as Addington) are being neglected. There were no case studies to demonstrate an example of true community-led master planning, which suggests this may be a new and interesting area for landscape architects to become involved in.

Overall, for a handful of Christchurch communities, there has been some positive progress at this scale. Landscape architects have been
actively involved in cases where master plans are being developed, and their presence has influenced some good practice. However, the full extent of the role of landscape architects at this scale has not yet been fully realised. Landscape architects have been restricted in their role of community regeneration by lack of a big picture strategy. In the absence of an urban development plan, it is difficult to make the most of the opportunity to undertake community master planning in a way that improves integration of each community within the wider city. Furthermore, as a symptom of not being involved in big picture decision, landscape architects are unable to address the issues of urban sprawl and urban quality of undamaged suburban centres that are also important at this scale. Lastly, the Sumner community have introduced an interesting new problem of community-led master planning that could very well be addressed by landscape architects who are most familiar with a bottom up, place based approach. This is an area of the recovery that requires further research by landscape, and is worth keeping an eye on in the future.
THE ROLE OF LANDSCAPE ARCHITECTS IN EARTHQUAKE RECOVERY AT THE LOCAL SCALE
**Fabric designing**

Imagine the individual patches on a huge patchwork quilt and the thousands of different fabrics that are used. Some patches might be tough and durable, made out of material like jute, while other patches are delicate and made of the highest quality silk. Some patches are made of densely patterned or colourful fabric, and some are simply monotone. Further still, some patches are old or low quality scrap material and are in need of replacement, whereas others are brand new or of high quality, requiring only care and maintenance. Fabric designing is the practice of creating the fabric of each individual patch in the quilt. It involves choosing the combination of colours, textures and qualities of threads and deciding the way in which they are woven together resulting in a unique fabric. It also involves selecting the stitching that hold the patches together, either high quality cotton, or cheaper, tougher nylon. Best practice in fabric designing is therefore to strive for right quality and characteristics that are distinctive and interesting yet harmonious with the rest of the patch work.

In the same way that fabric patches are joined to make the quilt, each individual site or type of land use that makes up the neighbourhood or city; the single Public Square, community garden, school, or residential property, are stitched together to make up the wider landscape. A key difference at this scale is that patches may be publicly or privately owned. While fabric designing in a landscape sense involves input from multiple disciplines and for the most part is carried out in an unplanned, organic fashion, landscape architects would be considered as specialists in fabric designing. In the same way that anyone can pick up a paint brush and put colour on canvas, landscape architects in this case would be professional artists. Therefore in the case of Canterbury where many individual neighbourhood streets, parks and properties have been severely damaged by the earthquakes, landscape architects can be seen as specialists that can help the patch owner to build back better by designing the site to be resilient, sustainable and beautiful. Whether regeneration requires small scale repair work or complete replacement, landscape architects will strive to make the most of the opportunity to regenerate each site to suit the users, the client(s), and the wider landscape.
FIGURE 5-1: FABRIC DESIGNING IS THE ART OF CREATING THE FABRICS THAT MAKE UP EACH AND EVERY ONE OF THE PATCHES IN THEPATCHWORK QUILT (QUILT BY ROBIN CLARKE)

SOURCE: STUART AYRES
FIGURE 5-2: NEW HOUSING DEVELOPMENT, UPTON RISE IN NORTHAMPTONSHIRE, ENGLAND. LANDSCAPE ARCHITECTS ARE HIGHLY EXPERIENCED WITH CREATING AND REGENERATING LOCAL ENVIRONMENTS THAT ARE FUNCTIONAL FOR PEOPLE, BIODIVERSITY AND NATURAL PROCESSES.
THE CRITICAL ROLE OF LANDSCAPE ARCHITECTS IN REGENERATING OUR LOCAL ENVIRONMENTS

Every individual patch fabric that landscape architects design make up one of the thousands of patches sewn together in the bigger patchwork; so the more beautiful patches there are, the more beautiful the patchwork. Landscape architects are the specialists in fabric designing - experts in selecting the physical qualities and characteristics of the fibres of each patch and weaving them together in a unique fabric. The skills and expertise of landscape architects are valuable in roles of both long term and short term recovery and regeneration projects at this scale.

Regenerating local scale environments is perhaps the most frequently recognised role of landscape architects in general practice, and in disaster recovery practice. It is the most familiar scale to the general public and is the scale at which landscape architect’s plans and designs are seen as physical forms, materials and vegetation in space. Landscape architects have critical role in regenerating our local environments after a major disaster, offering their facilitation and design skills, knowledge and creativity to help a city build back better. Landscape design is where the synthesis of community visions and objectives are translated into reality. Designing landscapes at this scale is concerned with: spatial volumes and relationships; circulation patterns; site function and features; the details and properties of surfaces; the qualities, functions and health of vegetation and habitat; site safety and lighting; and the creative synthesis of these features to create an aesthetically pleasing, sustainable, meaningful and functional place for its users. Sometimes landscape design is purely aesthetic in the form of flower beds, land art or sculpture; however landscape design is increasingly used as a means to improve the function of a site to make it more sustainable, meaningful and user friendly.

Not surprisingly the design process at this scale is much more straightforward than at larger scales, although the process is still rigorous and variable depending on the nature of project such as: ownership - whether it’s a public or private site; location - whether it’s located in the inner city, out in the suburbs, or in the countryside; its function – whether it’s a recreational park, a community garden, or a wetland for example. The landscape design process begins with a detailed sight analysis, followed by the creating of a concept plan, a detailed landscape plan, a planting plan, site feature details including cross sections and elevations, as well as a budget, implementation and ongoing maintenance plan. Throughout the process is input and feedback from owners, stakeholders, and other experts which may be carried out in design workshops or charrettes, or through community meetings.

“The purpose of the game is to improve the environment whenever you do anything to change it.”

Garrett Eckbo
(in Simonds and Stark, pg 101)
THE ROLE OF LANDSCAPE ARCHITECTS IN REGENERATING OUR LOCAL ENVIRONMENTS IN DISASTER RECOVERY

THE ISSUES FOR LOCAL ENVIRONMENTS

Thousands of peoples homes, work places and retail service centres have been damaged and many of those beyond repair. Many have already been demolished leaving gaping voids or piles of rubble in the streetscape, while others stand in ruins while they await demolition or repair work. Heritage buildings have been lost, taking with them the charm and character of Christchurch’s heritage. Roads have been cracked and smothered with liquefaction, and are still awaiting replacement until repair work to underground infrastructure has been made. Waterways are cloudy with silt and raw sewage, river and estuary beds have raised and their banks have collapsed, degrading ecological habitats further and causing problems for drainage and pollution. Rock fall and other debris have crashed down on houses, roads and parks along the sea cliffs and in the hill suburbs, while few abandoned houses remain teetering on the cliff tops.

The recovery issues present at the local scale are basically the manifestation of all the issues present at the community/district and regional scales. Issues at the local scale are direct representation of how people’s lives have been and still are affected by the earthquakes. One year on from the first earthquake in September and the city is now the country’s biggest construction site. It’s still looking like a very long road ahead for Canterbury before they begin to see a city that resembles little more than a disaster zone, but recovery is happening, and little more than a positive attitude will keep the city’s future looking bright.

In the long term, the most obvious issue for landscape architects in the Canterbury recovery is how they can ensure that they are on par with best practice in local scale regeneration. What is considered good practice in previous disaster recovery cases that can be learned from in this the recovery? While long term regeneration projects are an opportunity to implement general landscape architecture best practice, quite unique to the disaster recovery period is the important issue of regenerating local scale environments in the mean time. In the short term, the issue is about how landscape architects can help communities begin local regeneration through innovative design of intermediate landscapes. The local recovery issues that remain are:

- How do we build back better to ensure Christchurch is an even more attractive city for its loyal residents and more resilient to future disasters?

- How do we continue to get by living our everyday lives in the mean time while deliberated long term recovery decisions are being made and reconstruction gets underway?
OVERVIEW OF CURRENT PRACTICE FOR ADDRESSING THE ISSUES

EFFORTS MADE TOWARD LONG TERM REGENERATION

It is too early in the recovery process to report any long term regeneration projects in Christchurch. Since the first earthquake in September, authorities have been incredibly busy focusing on the recovery at a much bigger scale, assessing land damages and developing the long term recovery strategy. They have understandably prioritised this over beginning regeneration efforts at the local scale. However, there is positive indication that local authorities are likely to engage landscape architects and other design professionals in landscape design projects within the Central City later in the recovery. Proposed projects such as the Avon River Park, Cathedral Square design competition, new compact CBD with people friendly streets, neighbourhood parks and an earthquake memorial are just a few of the projects expected to require landscape architectural input at the patch scale. Furthermore, a 48 Hour Design Challenge run by the Christchurch City Council, was used to generate ideas for local scale sites in the Central City that would influence the Central City Plan, indicating that high quality, sustainable design is a priority for them.

EFFORTS MADE TOWARD SHORT TERM REGENERATION

Intermediate Accommodation

For those who lost their home in the earthquakes, the Government made efforts to ensure displaced people were temporarily housed. While it is understood that there is a landscape architecture service offered within the company that designed the temporary villages in Canterbury, strong landscape architecture principles are not evident in the village master plans (see CRE Box 5-1). This should be of more concern to anyone who values the long term regeneration of Canterbury, and is anxious about the detrimental accumulated effects of current practice.

Intermediate Community Space

It appears that while the local scale reveals the most devastating damages, residents can most readily comprehend the level of effort that is required to recover, and will therefore in many cases be proactive about beginning their recovery efforts, regardless of the authorities support. While authorities have been preoccupied, a number of hard hit Christchurch communities have admirably taken the initiative to begin their own recovery process. Several grass roots organisations have evolved since the September earthquake that have a purpose of making use of the vacant sites where buildings have been demolished. Now, scattered throughout the city are demolition sites that have been transformed into temporary community space and shipping containers have been converted into roadside espresso bars. The Council has also worked towards providing entertainment venues for the community in the mean time; Hagley Park has been transformed into village of public displays, a performance centre, bars and a fan-zone for watching the oppressively absent Rugby World Cup.
Landscape architects in Christchurch have been actively engaged in voluntary roles of temporary community space regeneration at the local patch scale. Through offering their expertise in facilitation, creative design and sustainability, landscape architects has been a critical player in stimulating the short term regeneration a number of communities and there are plans in the pipeline for many more. However, while progress so far has demonstrated that collaboration, volunteerism and generosity are greatly rewarded as far as community spirit goes, communities and professional volunteers are beginning to lose momentum in their short term recovery efforts when they come up against the authorities who are reluctant to make decisions about the future of a public site or release much needed funding for intermediate community space projects.

THE ROLE OF LANDSCAPE ARCHITECTS IN DEALING WITH INTERMEDIATE ACCOMMODATION

Greatly exaggerated yet often inadequately recognised in post disaster recovery is the importance of strategically dealing with issues recovery in the short and intermediate term. Current intermediate accommodation options provide people with the bare minimum for acceptable living standards, and there has been no attempts made to ensure the approach to addressing temporary accommodation is sustainable. The issue of temporary accommodation has been addressed as an issue of relief as opposed to recovery or rebuild, and is therefore addressed as quickly and as cheaply as possible. Conventional temporary solutions to problems such as accommodation merely add to the crisis of waste accumulation in the long term by using cheap, unsustainable materials and construction methods. It is obvious that the accumulated effects of approaching temporary accommodation in this way has not been thought about, or is not a priority for government.

The role of landscape architects in dealing with decisions about short term accommodation is critical to ensuring temporary villages are designed to be both as sustainable (least wasteful) and as liveable as possible. If people are adequately accommodated in the midterm while the permanent rebuild takes place, there is not as much pressure to make hasty decisions, and there is more time for deliberation about long term master planning. Environmental sustainability is not the only concern with temporary environments. The quality of living environment should also be a major consideration for those displaced people who are likely to be suffering incredible stress from the trauma of the earthquake and loss of lives and livelihoods (Olshanksy, 2006). Current temporary environments provided in the Canterbury recovery tends provide people with the bare minimum for acceptable living and working standards. Temporary houses are by no means a 'home' and people often feel very uncomfortable in their downgrade at a time when they are already emotionally and economically stretched. In a summary of lessons learned from the recovery planning process after the 1995 Kobe Earthquake, Olshansky (2006) mentions temporary accommodation as being a critical aspect of recovery. He emphasises that the need of residents goes beyond simply having a roof over their heads. Location of housing and proximity to their original living location are essential components to consider. In Kobe, many people were temporarily housed in poor quality units that were a long way from their previous homes and neighbours. This dramatic shift and feeling of 'placeless-ness,' commonly led to depression and sometimes suicide (ibid).
It was first thought that up to 2500 temporary houses may need to be constructed to accommodate Canterbury residents who had lost their homes (Hartevelt, 2011). However, due to a sufficient supply of private rental properties, there were considerably less inquiries for Government support by way of accommodation, with less than 300 people so far indicating they require portable dwellings. (Ministry of Social Development, 2011).

The first wave of approximately 300 portable homes, are currently being constructed in temporary villages across Canterbury. Three village sites have been confirmed so far, and are located at Kaiapoi Domain (now ready for occupation), Linwood Park (ready end of August) and Rawhiti Domain (currently on hold). Each village will contain no more than 80 dwellings and are to be located as close as possible to amenities such as schools, medical centres, shops petrol stations and public transport. They are to be fully serviced with town water supply, sewerage and storm-water drains, rubbish collection, mail delivery, power and telephone lines. Displaced people will be located in villages as close to their own neighbourhoods as possible. While temporary villages are fully serviced with sealed roads, sewage and electricity, the plan is to completely dismantle them once they are no longer required, and returned to their original state.

The temporary units themselves are standard portable dwellings that are designed and constructed to be as cheaply and quickly as possible while meeting requirements of the building code (which means they are well insulated etc). There is nothing innovative about their design. Dwellings vary in size and configuration from 1 – 4 bedrooms, with and without laundry and bathroom units.

The Canterbury surveying and engineering company Davie Lovell-Smith was the company contracted by the governments Department of Building and Housing to draw the master plans for the temporary villages. Davie Lovell-Smith has recently expanded their services to include landscape architecture, and is now involved in a wide range of development projects in Canterbury (www.dls.co.nz, 2011).
While many landscape architects may wish otherwise, demand for well designed temporary landscape is not common in everyday practice. There are few exemplary cases where landscape architects have played a key role in the design of vital temporary accommodation for disaster recovery. This is no reason to think they should continue to be excluded however. In the absence of an implemented case study example, a project of my own can be used to demonstrate good landscape architecture practice in dealing with short term accommodation. Re: Place Environments is a self-driven project (and business idea) for a temporary environment concept that seeks to change the way people perceive the idea of temporary. It has a focus on the concept of using relocatable architecture in place of cheap, unsustainable temporary accommodation. Due to a lack of resources and time, the project has been put on hold, but the concept remains one that has great potential to be developed and implemented in the future (see GPE Box 5-1).

THE ROLE OF LANDSCAPE ARCHITECTS IN COMMUNITY (INTERMEDIATE) SPACE REGENERATION

Thousands of sites across the city were damaged building have been removed may remain an empty void in the urban fabric for a long time while they await decisions about their future development. These gaps will often become derelict wastelands that are not only unsafe, but are a constant reminder the healing community about what they have lost in the disaster. Furthermore, cities and neighbourhoods will be under construction for a long time. The function and appearance of new development sites are just important to think about the city recovers. It pleasing to see that Canterbury communities have not ignored this important part of disaster recovery. Local communities have made some impressive progress in the short term recovery to date. Not surprisingly though, they are still confronting limitations to their efforts. This section talks first about the short term regeneration efforts in Canterbury before launching into a discussion about the potential role of landscape architects in helping these communities.

Gap Filler and Greening the Rubble (CRE Box’s 5-2 & 5-3)

Gap Filler and Greening the Rubble were two initiatives set up by members of the Canterbury community to restore vacant sites awaiting redevelopment into usable public spaces. They are legally formed under a wider initiative called Make-SHIFT, a group of Christchurch volunteers that draw upon professional skills to develop the concept of making temporary parks and shifting elements of these later between sites. Local landscape architects have been actively engaging with these organisations and local neighbourhoods (often in their own neighbourhoods), and like many other professionals, volunteering their time and expertise to help them with their recovery. Both Gap Filler and Greening the Rubble have now established themselves as well known nonprofit organisations that have recently gained support from the Christchurch City Council, and are currently collaborating with communities and volunteer professionals to complete temporary public space projects city wide. Gap Filler often teams up with Greening the Rubble which develops the site works while Gap Filler organises the arts events, performances and installations to bring the site alive.
GPE BOX 5-1

GOOD PRACTICE EXAMPLE: Re:PLACE Environments
INTERMEDIATE ACCOMMODATION | AUTHOR PROJECT

The philosophy of Re:Place Environments is to address broad scale issues of sustainable recovery by resolving them as spatial strategies that are broken down further into practical, physical components within the built environment. The current application of the Re:Place Environments philosophy is a project driven by a clever and logical strategy for a more sustainable and desirable approach to providing temporary accommodation, where short-term problems are solved with long-term visions in mind. The philosophy is one which combines principles of: Sustainable design and (re)construction; Resiliency and adaptability; Sustainable lifestyles and communities; Innovative economic solutions; (re)Generating sense of place and identity. While Re:Place Environments is a project that has been inspired by the post-earthquake recovery process, the philosophy behind the project is one that could be applied anywhere and in any temporary situation.

The concept of Re:Place Environments is exactly as the name suggests – to re-use ‘temporary’ environments by re-placing newly constructed temporary modules into their permanent position once they are no longer required temporarily. As a basic concept, the necessary units that are purpose built as temporary accommodation are designed and built with their next life in mind. ‘Re: Parc’ units are essentially high quality modular homes. They are versatile, relocatable and adaptable, designed and engineered as stackable permanent floors of inner city buildings to become apartments, offices and hospitality premises.

As a result of constructing short term accommodation in this way, there is significantly less waste of materials, time and money; investment and actions towards redevelopment can begin almost immediately, there is a high quality living environment offered to displaced people; all while allowing time for deliberation about quality planning of the future city.

FIGURE 5-6: RE:PLACE ENVIRONMENTS CONCEPT IMAGES. TOP: ARCHITECTURALLY DESIGNED RE:PARC UNITS ARE CONSTRUCTED AS INDIVIDUAL UNITS FOR USE IN A TEMPORARY VILLAGE AS INTERMEDIATE ACCOMMODATION. CENTRE: WHEN UNITS ARE NO LONGER REQUIRED AS INTERMEDIATE ACCOMMODATION, THE UNITS ARE GRADUALLY RELOCATED TO THE RECOVERING CENTRAL CITY. BOTTOM: THE UNITS ARE STACKED TO FORM INNER CITY APARTMENTS, HOSPITALITY AND RETAIL SPACES. THEY ARE EVEN STILL RELOCATABLE IN THE EVENT OF ANOTHER MAJOR DISASTER IF NECESSARY.
While these projects have been very successful so far, the current limitations to this type of initiative is a lack of funding and support, as well as frustrations about delayed decisions about what sites are appropriate for temporary regeneration. So far, the temporary sites that have been regenerated have happened out of acts of philanthropy and volunteerism. Only more recently has the City Council started to support the running costs of the organisations, however funding for the projects themselves is still limited. While the projects that have been completed since the earthquakes have been completed with great enthusiasm and camaraderie, the same level of generosity for hundreds more vacant sites around the city requiring future projects is simply not sustainable. There are going to be thousands more vacant sites around the city in years to come, but landscape architects and other key volunteers cannot be expected to continue to volunteer their services, and before too long, local businesses will run out of resources to donate. This leads to an important argument that authorities should allow a larger portion of the recovery budget for funding short term local regeneration projects. It comes down to the same tension between the short term recovery and long term recovery within the wider problem of speed versus deliberation that is experienced at every scale.

THE POTENTIAL ROLE OF LANDSCAPE ARCHITECTS IN (SUSTAINING MOMENTUM OF) INTERMEDIATE COMMUNITY SPACE REGENERATION

There is no denying that local scale regeneration is critical to the early stages of the recovery. While landscape architects would consider themselves as advocates of local scale regeneration, the tension between taking the time to do recovery-planning at the big picture scale ahead of recovery at the local scale, still remains. There is still a valid and important argument that if cities are to become more resilient through post-disaster recovery, time needs to be taken to produce urban development strategies and structure/master plans before long term regeneration at the patch scale can take place. However, there is also an argument that short term local scale regeneration is critical to the long term recovery. This tension brings us to the discussion of the temporary and intermediate landscape – the short term regeneration of communities following disaster and why this is still so important to the long term recovery. I believe landscape architects become key players in dealing with the speed versus deliberation tension through what could be termed a more strategic approach to temporary landscape design. That is, the mentality of thinking about the intermediate landscape as contributing to successful long term recovery.

While international case studies will show us best practice examples of what we could be achieving for our long term local regeneration, I was unable to find any post disaster case studies that demonstrated a better way that landscape architects could be dealing with the temporary landscape, than in the Canterbury recovery. This puts the Canterbury recovery in line with current best practice for short term regeneration in disaster recovery. However, as highlighted earlier, unfortunately current practice is just not sustainable. Communities and professional volunteers are beginning to lose momentum in their short term recovery efforts as they become more and more frustrated with the authorities who seem to be paralysed by the tension between prioritising long term recovery efforts over short term regeneration. This is where I see the role of landscape architects in influencing a solution to this conflict. I suggest that in order to maintain momentum of positive community recovery efforts, landscape architects need to use their existing principals, theories and practices to
Greening the Rubble is a community project that runs under the umbrella of Living Streets Aotearoa Inc, and with guidance from Make-Shift, who advise the day to day work of Greening the Rubble project driver, Rhys Tylor (who is contracted to Living Streets Aotearoa Inc.). It operates by uniting teams of multidisciplinary volunteers to respond creatively to the extensive damage caused by recent large earthquakes. In doing so Greening the Rubble is creating temporary public parks and gardens on sites of demolished buildings. License agreements with site owners, modest financial support from the site owners and extensive sponsorship from local businesses of the construction materials and design process, make it possible for volunteer teams to build and maintain the temporary parks. Through support from the NZILA, local landscape architects have played a key role in volunteering their expertise and skills to design the temporary landscapes. Other key contributors to greening the rubble staff and students at the School of Landscape Architecture at Lincoln University, as well as Canterbury University, Christchurch City Council and Living Streets Aotearoa Inc.

(source: greeningtherubble.org.nz)

**FIGURE 5-7: FIRST GREENING THE RUBBLE SITE ON VICTORIA STREET, POST SEPTEMBER EARTHQUAKE. LEFT: PEOPLE VOLUNTEERED THEIR TIME, MATERIALS, TOOLS AND ENERGY TO HELP CONSTRUCT GREENING THE RUBBLE’S FIRST COMMUNITY SPACE ON A VACANT SITE ON VICTORIA STREET. RIGHT: LOCAL LANDSCAPE ARCHITECTS DESIGNED THE SITE TO BE BOTH TEMPORARY (REMOVABLE), SUSTAINABLE AND CHEAP TO CONSTRUCT. BRICKS WERE USED TO FILL GABION BASKETS, WHILE WILD FLOWERS GROWN FROM SEED PROVIDED THE VEGETATION.**
CHAPTER FIVE: THE LOCAL SCALE

GAP FILLER

Gap Filler was an idea dreamed up by creative artist Coralie Winn following the September 4 earthquake. Coralie began the ‘creative urban regeneration initiative’ with the intention of providing temporary public creative arts spaces in the gloomy looking gaps that were left in the wake of the September earthquake. It was an idea she had to try to keep the creative arts community of Christchurch alive after many performers found they had their usual premises destroyed by the earthquake. The idea took off and now Gap Filler has worked in partnership with Greening the Rubble to complete 8 temporary sites, bringing communities back to life across Christchurch. It is now administered by the Gap Filler Charitable Trust, is supported by the Christchurch City Council, and has even received a Listener Arts award for Small Acts of Creative Enterprise.

(source: gapfiller.org.nz)

FIGURE 5-8: GAP FILLER PROJECTS. Top: The ‘Think Differently Book Exchange’ was a ‘gap’ on the corner of Barbadoes and Kilmore Streets, where people go to exchange books...from an old fridge! Bottom: ‘Events in the Gap’ was Gap Filler’s first project which brought live entertainment and films to one of the ‘gaps’ on Columbo Street, Beckenham.
lead the argument that regeneration intermediate landscapes require more top down recognition and support in recovery. Even without specific disaster recovery case studies, there is plenty of landscape architects are well qualified to support the argument that by thinking about the recovery as a rapid yet beautiful process of positive landscape change, short term regeneration can be a justified component of the long term recovery process, so long as temporary landscapes are enriching, sustainable and are thought about as contributing to the long term regeneration.

LANDSCAPE ARCHITECTURE THEORY ON THE CONCEPT OF INTERMEDIATE LANDSCAPES

In a theoretical sense, all landscapes could be considered temporary when we take into consideration the life span of a landscape, eg.: a bridge that is built to last 100 years could be considered temporary within a large time scale, while a temporarily constructed scene for a social event such as a festival is considered temporary on a smaller, more human time scale. Temporary landscapes may occur once and never again, or they may occur periodically every day, every week, or seasonally every year. Regardless of temporality, physical changes whether they are intended to be permanent or not are simply adding layers to the ever evolving landscape. What should be of interest to landscape architects in the post disaster recovery situation is how those changes can be innovatively designed to be both interesting and usable in the short term, whilst still being sustainable, and contributing to the long term regeneration of a community.

The Concept of Temporary Landscapes

In his paper Temporary Landscapes (as illustrated in the table 5-1), Mayo (2009) describes temporary landscapes as:

“the result of either planned or reactive social circumstances, and the outcomes can be primarily enriching or corrosive.”p125

<table>
<thead>
<tr>
<th>Social Circumstance</th>
<th>Enriched Landscape</th>
<th>Corrosive Landscape</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planned</td>
<td>Rituals</td>
<td>Crimes and wars</td>
</tr>
<tr>
<td>Reactive</td>
<td>Epiphanies</td>
<td>Natural and human disasters</td>
</tr>
</tbody>
</table>

In the case of temporary landscapes experienced in the Canterbury earthquake recovery, the social circumstance could be considered as first reactive and then planned once recovery is underway. The corrosive temporary landscape is the outcome of a natural disaster while an enriched temporary landscape awaits the outcome of epiphanies (such as Greening the Rubble and Gap Filler) and perhaps later, rituals (such as memorial events). His theory purely emphasises the point that temporary landscapes are something we deal with every day and should be seen as part of the natural evolution of a landscape. Temporary landscapes can be either enriching or corrosive to the life of a
landscape. As landscape architects, if we are to aim for enriched landscapes then must become experts in enrichment and avoid creating corrosive landscapes in both the short term and long term recovery.

Mayo also brings up the important point that temporary landscapes are often important for defining moments in history. Mayo describes ‘scenes’ as landscapes that could be temporarily converted by people to host a social event such as a parade, a wedding or a sports event, and then reconverting back to its long term use. But temporary ‘scenes’ of events can also permanently redefine a landscape. For example, a battle, a terrorist attack or a natural disaster can cause a ‘scene’ that temporarily and permanently alters a landscape. For Canterbury, the scene of the destroyed central city will forever leave a layer on the landscape. The corrosive temporary landscape in this case is one which we will make ourselves remember, in order to respect the past and all that we have lost.

While Mayo’s theory is useful for the discussion of temporary landscapes in general, his argument is focused more on the perception of temporary landscapes and tends to only briefly scrape the sustainability factor of temporary landscapes in post disaster recovery. Mayo also quotes that: “Enriched landscapes are articulated designs of anticipation, whereas procedures for countering corrosive landscapes are rationalized designs of reaction.” (p133).

This quotation is easily adapted to support my own theory that articulated designs of enriched temporary environments in the recovery phase need to anticipate the effects of their construction in the long term, as opposed to being merely reactions to the corrosive landscape left by the earthquake.

The Concept of an Intermediate Nature

Michel Desvigne is a landscape architect who basis his theory on the idea of “landscape architecture as a living art form, that is more about cultivation, process and change over time than it is with more familiar landscape architectural practices such as formal composition and representation.” (essay by James Corner in Basdevant, 2009.) Like Mayo, he reminds us of the truthful fact that no landscape is ever finished; the landscape is one medium that never stops evolving. In the edited book Intermediate Natures: The Landscapes of Michel Desvigne (Basdevant, 2009), Desvigne emphasises the idea of seeing beauty in the development of a landscape, as opposed to only ever striving for a ‘finished’ landscape.

In his work, Desvigne is referring to the intermediate natures of everyday landscape, not just landscapes that have been damaged by a disaster. But his theory and his appreciation for understanding the landscape as rough, temporary architecture under development is a theory should actually be emphasised in the post disaster recovery situation as the whole city undergoes a massive period of change – a prolonged period of condensed development. If we as landscape architects can help people to understand and recognise the beauty of the landscape as a place of intermediate natures through the practice of strategic temporary landscape design, then we will be far better able to contribute to the early stages of disaster recovery.

“I like this idea of intermediate nature (...) I like the long time frames of landscapes and cities. I especially like the play with time: the highlighting of successive phases, the emphasis on early phases, the coexistence of different stages of development that concentrate and condense, in a short period, process with historical rhythms. These intermediate natures are architecture - rough, temporary architecture under development.”

Michel Desvigne

(Basdevant, 2009: 12)
THE ROLE OF LANDSCAPE ARCHITECTS IN LONG TERM REGENERATION OF OUR LOCAL ENVIRONMENTS IN DISASTER RECOVERY

From my research of international disaster recoveries and the field survey, it is clear that the role of landscape architects in disaster recovery is most frequently demonstrated at the local scale in long term regeneration projects. Although Canterbury is not quite at the stage of implementing long term local projects, there is positive indication that local authorities are likely to engage landscape architects and other urban specialists in landscape design projects within the Central City later in the recovery. The draft Central City Plan has indicated in several cases, the latent need for landscape architects. The 48 Hour Design Challenge (see CRE Box 5-4 overleaf) held by the Christchurch City Council generated a lot of potential concepts for specific sites of the Central City, some of which are shown in this section. While no local regeneration projects are implemented at this stage, there are a number of useful case studies from disasters around the world that can be used to inspire the future regeneration of Canterbury’s local landscapes. Included in this selection are case studies from disaster recoveries all over the world including Greensburg, Kansas; New Orleans; Manchester City; San Francisco; Hiroshima, Japan; and Tangshan, China.

CIVIC REGENERATION

Civic landscape design in post disaster recovery is typically led by local authorities with significant stakeholder/community engagement. It involves the design of public space in the city, is often concerned with circulation, market space, aesthetic, function and historical meaning. Regenerating the civic landscape in both the short and long term is an important step to regenerating economic, cultural and social well-being, as well as environmental wellbeing through the application of green technologies.

Important especially to civic regeneration is the concept of sense of place. In the same way an old fashioned patch fabric or patchwork pattern instils a sense of history and character to the quilt, preserving or reflecting on historical landscapes or character qualities of the city is critical to defining a sense of place and identity. In the globalized and rapidly developing world, many cities struggle with maintaining a unique identity and character. Landscape architects are increasingly involved in fighting this battle and are one of the only disciplines concerned with ensuring modern development strengthens cultural identity and sense of place as opposed to exacerbating the cultural identity crisis.

The 48 Hour Challenge produced some impressive ideas for civic regeneration of the Christchurch CBD (see CRE Box 5-5). Both Manchester City and San Francisco can be used as further inspiration for Christchurch as examples of successful post-disaster civic regeneration projects that were lead by landscape architects (see GPE Box’s 5-2 & 5-3 overleaf).
The 48 Hour Challenge, held at Lincoln University’s School of Landscape Architecture, attracted more than 100 design professionals (including myself) who worked in 15 teams to do landscape and architectural designs for five sites (patches) in the Central City that had been selected by the City Council. While the teams consisted of multiple disciplines including architects, planners and engineers, landscape architects were one of the most well represented disciplines in the challenge. Each of the three teams working on one of five inner city sites were given a summary of the Christchurch community’s “Share an Idea” results and were encouraged to push for the “Wow Factor” in their design, whilst aiming to be as realistic as possible in terms of planning, budget and engineering restrictions. Each site had a winning team, and there was one overall winner (NZWood) who took away the grand prize. The designs produced by each team were gratefully received by the Council who displayed them on their website for public critique. It’s now evident that the designs have also contributed to decisions made in the draft Central City Plan.

CRE BOX 5-4

CANTERBURY RECOVERY EXAMPLE:
48 Hour Design Challenge Event
Christchurch City Council

THE 48 HOUR DESIGN CHALLENGE

The 48 Hour Challenge, held at Lincoln University’s School of Landscape Architecture, attracted more than 100 design professionals (including myself) who worked in 15 teams to do landscape and architectural designs for five sites (patches) in the Central City that had been selected by the City Council. While the teams consisted of multiple disciplines including architects, planners and engineers, landscape architects were one of the most well represented disciplines in the challenge. Each of the three teams working on one of five inner city sites were given a summary of the Christchurch community’s “Share an Idea” results and were encouraged to push for the “Wow Factor” in their design, whilst aiming to be as realistic as possible in terms of planning, budget and engineering restrictions. Each site had a winning team, and there was one overall winner (NZWood) who took away the grand prize. The designs produced by each team were gratefully received by the Council who displayed them on their website for public critique. It’s now evident that the designs have also contributed to decisions made in the draft Central City Plan.

FIGURE 5-9: TEAM LANDMARKS. MY TEAM MATES (TONY MILNE AND JEREMY LONDON) AND I IN THE 48 HOUR CHALLENGE - 48HRS OF DESIGN AND NOT ALOT OF SLEEP!!
CANTERBURY RECOVERY EXAMPLE: MARKET SQUARE CIVIC REGENERATION DESIGN | 48 HOUR CHALLENGE

TEAM LANDMARKS: CIVIC REGENERATION FOR MARKET (VICTORIA) SQUARE AND THE NEW CANTERBURY SCHOOL OF MUSIC (90 ARMARGH STREET)

Team LandMarks presented a strong (winning) project for the regeneration of Victoria Square and the building site at 90 Armargh Street.

“Victoria Square, like a lot of Christchurch’s urban fabric has now been found in the public’s eye; a site steeped in cultural history, a mihinga kai for both the people of Waitaha and Ngai Tuahiwi, and a thriving market place. Market Square is now ready to be returned to all people of Christchurch...

We have revealed the site in terms of it’s history, ecology, and culture, unravelling rich and dynamic elements that have been lost in the course of time. The history, culture and ecology once present on site, physically and spiritually have been revealed and reclaimed...”

Team LandMarks - 48 Hour Challenge

FIGURE 5-10: TEAM LANDMARKS PROJECT CONCEPT.
LEFT: PLAN VIEW OF THE REDESIGNED VICTORIA SQUARE. RIGHT: ARTISTS IMPRESSION OF THE NEW CANTERBURY SCHOOL OF MUSIC AND RECLAIMED AVON RIVER EDGE

SOURCE: TEAM LANDMARKS
The Loma Prieta Earthquake caused severe damage and subsequent demolition of San Francisco’s Embarcadero Freeway (California State Route 480), which for 30 years had intercepted the waterfront and ferry terminal and the city. Prior to the elevated freeway construction in the 1960s, urban designers had fought the proposal, knowing that the automobile oriented decision to build the freeway would have negative implications for the city. Prior to the earthquake many San Francisco residents had formed a coalition to fight for the removal of the constructed freeway in an attempted reopen the waterfront. Their attempts were opposed by people who were concerned about traffic gridlock, and were unsuccessful in their attempts to have the freeway torn down. However, following damages created in the Loma Prieta earthquake, decisions were made to demolish as opposed to reconstruct the freeway and replace it with a three mile long promenade and light rail system that linked Pier 39 to Mission Bay (LAND FORUM, 1999). Mayor Art Agnos was voted out of office following his decision to demolish the freeway, although he remarked that “The best decision I made as mayor was to demolish that freeway. It removed that scar and opened up one of the most important parts of this city for development.” (http://www.preservenet.com/freeways/FreewaysEmbarcadero.html)

In 1992 Sasaki Associates of San Francisco and ROMA Design Group were retained by the City Council as urban design consultants to redesign the waterfront. Landscape architects and urban designers worked closely with multiple stakeholders to produce a design for the public space that restored its role as a transit hub and gateway, while reflecting the sites history as a working waterfront (LAND FORUM, 1999). Sasaki Associates designed the Embarcadero Boulevard while ROMA Design Group (who has also been involved in designing the America’s Cup Village in Auckland, New Zealand) focussed on the Mid Embarcadero. This is where a number of inter-related public spaces including parks, plaza’s, piers and promenades were designed and built to reconnect the urban fabric and refocus the city on its waterfront. The project includes a major new plaza; the redesign of Justin Herman Plaza; the design of the Embarcadero roadway as a recreational and transit-oriented boulevard; and the regeneration of Piers 7 and 14 which allowed public access over the water (Braun, 2009).

GPE BOX 5-2

GOOD PRACTICE EXAMPLE: MID EMBARCADERO, SAN FRANCISCO CIVIC REGENERATION (ROMA & SASAKI ASS.) | POST-EARTHQUAKE OCT 1989

The Loma Prieta Earthquake caused severe damage and subsequent demolition of San Francisco’s Embarcadero Freeway (California State Route 480), which for 30 years had intercepted the waterfront and ferry terminal and the city. Prior to the elevated freeway construction in the 1960s, urban designers had fought the proposal, knowing that the automobile oriented decision to build the freeway would have negative implications for the city. Prior to the earthquake many San Francisco residents had formed a coalition to fight for the removal of the constructed freeway in an attempted reopen the waterfront. Their attempts were opposed by people who were concerned about traffic gridlock, and were unsuccessful in their attempts to have the freeway torn down. However, following damages created in the Loma Prieta earthquake, decisions were made to demolish as opposed to reconstruct the freeway and replace it with a three mile long promenade and light rail system that linked Pier 39 to Mission Bay (LAND FORUM, 1999). Mayor Art Agnos was voted out of office following his decision to demolish the freeway, although he remarked that “The best decision I made as mayor was to demolish that freeway. It removed that scar and opened up one of the most important parts of this city for development.” (http://www.preservenet.com/freeways/FreewaysEmbarcadero.html)

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FIGURE 5-11: THE MID EMBARCADERO PROMENADE AND WATERFRONT. THIS THRIVING CIVIC SPACE ON THE SAN FRANCISCO WATERFRONT WAS ONCE A FREEWAY THAT COLLAPSED IN THE 1989 LOMA PRIETA EARTHQUAKE
On June 15 1996, Manchester City Centre was destroyed in a terrorist attack carried out by the Provisional Irish Republican Army (IRA). The bomb was targeted at the city’s infrastructure and economy and caused widespread damage to its commercial core. Exchange Square was one of the central city sites badly affected by the bomb.

During the city’s recovery, internationally renowned landscape architect Martha Schwartz was brought in to redesign the square, to make it vibrant public space to attract people back to the city.

“Vital to the design of this new square is that the plaza extends out to the building edges as its success, in part, depends on carefully ‘borrowing’ the activity of the surrounding buildings and streets.

“Because of the existing topography, the sculpting of a plaza level change is the major design factor. The level change accomplishes three things. It creates places for a great variety of activities, it provides a setting for the surrounding buildings, and it makes the square accessible to all.

“In a city that can be dark and overcast for much of the year, the effective use of light can be a dramatic and wonderful addition to the public realm. Along the tracks have been placed moveable benches that allow seating to be rearranged as needed.

“The lower level of the site gets the most sunshine and accommodates outdoor dining with a close relationship to the fountain. The historic line of Hanging Ditch is brought to life through an abstracted river. An excavated ‘ditch’ is filled with stepping stones. At the bottom of the flume, nozzles spurt water, simulating a fast running river. River Birch trees mark the line of the water feature giving a soft and more casual quality to this area.”

Source: marthaschwartz.com
CHAPTER FIVE: THE LOCAL SCALE

NEIGHBOURHOOD REGENERATION

Neighbourhood landscape design is typically led by a private stakeholder, a community or the council. As opposed to civic landscape design, neighbourhood landscape design is concerned with regenerating landscapes for everyday living, landscapes that contribute to community health and sustainable lifestyles.

One disaster recovery that has become well recognised in terms of it’s neighbourhood regeneration efforts is the Lower Ninth Ward neighbourhood in New Orleans after it was devastated by Hurricane Katrina. As opposed to waiting to be engaged by authorities to help with the recovery efforts, landscape architects were instead first engaged by a proactive organisation called Make It Right (MIR), who enabled them to collaborate with other designers and volunteer their expertise (see GPE Box 5-4). MIR has since gone on to be involved in multiple other projects to do with recovering the Lower Ninth Ward neighbourhood (as seen in the following case studies: GPE Box’s 5-5 & 5-6)

MAKE IT RIGHT

Two years after Hurricane Katrina, on a tour of the city, actor Brad Pitt witnessed the hardest hit neighbourhood of New Orleans Lower 9th Ward, where more than 4000 homes still lay in ruins. On this visit, Pitt promised the families that were still trying to live there that he would help them bring their neighbourhood back to life. Thus, he founded Make It Right, with a goal of building at least 150 affordable, resilient and high quality design homes for the residents who lost their homes in 2005. (http://www.makeitrightnola.org/)

Make It Right sought out top architects from around the world to design appropriate homes for the neighbourhood. MIR engaged both building architects and landscape architects to create designs that were green, affordable and resilient to future storms, whilst being aesthetically-advanced and used materials that met ‘cradle to cradle’ criteria.

PROGRESS TO DATE

To date, 50 green homes have been completed and a further 30 are under construction, all of which meet LEED Platinum criteria. In 2009, the US Green Building Council honoured Make It Right for building the “largest, greenest neighbourhood” of LEED Platinum homes in America. (http://asla.org/ContentDetail.aspx?id=30382)

GOOD PRACTICE EXAMPLE: MAKE IT RIGHT (MIR)
NONPROFIT ORGANISATION | NEW ORLEANS

“If you’re gonna rebuild something, why not do it right?” Brad Pitt

THE DISASTER

Hurricane Katrina hit the Gulf Region of the United States on August 29, 2005. The Storm was a category 5 as it approached the coast and was a category 4 when it hit land. While the hurricane caused severe damage in Louisiana and Mississippi, the hardest hit area was New Orleans in Louisiana. About 70% of New Orleans is lying below sea level, protected from the Mississippi River and Lake Pontchartrain by a series of levees. During Hurricane Katrina the levee system broke allowing flood waters to spill out over 80% of the city. About 180,000 homes were submerged under water during the flood and there were major failures of electrical and water infrastructure. 1577 people were killed in the disaster. Half of the people who died in the disaster were from the Lower 9th Ward.

GPE BOX 5-4
GOOD PRACTICE EXAMPLE: SUSTAINABLE SITES, LOWER 9TH WARD, NEW ORLEANS NEIGHBOURHOOD REGENERATION (MIR/COLLABORATIVE) | POST-HURRICANE AUGUST 2005

SUSTAINABLE SITES INITIATIVE

While it was initially beyond the scope of MIR to do a comprehensive master plan for the Lower 9th Ward, landscape architects engaged by the Make It right foundation focused their efforts on site sustainability at each house through the application of the Sustainable Sites Initiative (SITES)(see: www.sustainablesites.org). MIR’s home landscapes make up over a quarter of the points needed to obtain LEED Platinum rating, with each landscape demonstrating innovative design strategies such as:

- Solar shading with large caliper trees
- Plant massing and groundcovers to reduce maintenance requirements
- Reduction of conventional turf grass
- Fruit trees in rear of lot
- Climate appropriate plant species to minimize irrigation requirements
- Pervious paving for all hardscape areas
- Rainwater harvesting for miscellaneous landscape uses

(Source: asla.org)
CHAPTER FIVE: THE LOCAL SCALE

COMMUNITY BEYOND HOUSING PROJECT

The Lower 9th Ward Sustainable Sites and Community Beyond Housing initiatives have demonstrated how landscape architects have been involved with designing residential and neighbourhood landscapes that are of the highest sustainability rating.

A subsequent project to the MIR Pilot Streets Initiative (GPE Box 5-7) called Community Beyond Housing has been set up as a case study for effective new and regenerative models for gardens and public landscapes as a means of strengthening the sense of community post Hurricane Katrina. It is a collaborative project that focuses on urban landscape as part of the recovery and rebuilding of the Lower Ninth Ward community. Together, the groups involved in the project are planting 30 rainwater and urban gardens in the Lower 9th Ward to create green and public meeting places and to help reduce street flooding. The Landscape Resource Depot has been built as both a gathering place and a distribution point for plants and landscape materials for the entire community.

The project has been a collaborative effort between MIR, the Lower Ninth Ward community, the American Society of Landscape Architecture (ASLA), the Louisiana Chapter of ASLA, Louisiana State University’s Robert Reich School of Landscape Architecture, and the University of Colorado Denver’s Department of Landscape Architecture.

(Source: asla.org)
**SUSTAINABLE STREETSCAPES**

Sustainable streetscapes are streets that both function sustainably and encourage people to live sustainable lifestyles. Often they will be designed to cope with road surface water runoff (through storm water retention and filtration), while at the same time acting as an important corridor for both wildlife and people movement (most often active transport modes such as footpaths and cycle lanes). Many landscape architects are clued up on the latest green technologies and sustainable design practices as well as the latest fashions and aesthetic styles. Therefore their designs will go beyond form and function to embrace the aesthetics of sustainability and create landscapes that are both beautiful and sustainable.

The Draft Central City Plan has included a project called Eco Streets as part of their Green City strategy (see CRE Box 5-6). The role of landscape architects in designing post-disaster sustainable streetscapes and implementing ‘green infrastructure’, such as the Eco Streets proposed by the Plan, can be inspired by examples from both New Orleans and Greensburg, Kansas (see GPE Box 5-7 & 5-8).

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**CENTRAL CITY PLAN PROJECT PROPOSAL: ECO STREETS**

“The extensive repair of inner city streets provides an opportunity for the Central City to implement green solutions that have substantial and quantifiable benefits. New eco streets will improve the water and environmental quality of the Central City through the planting of trees and the installation of permeable surfaces and rain gardens to reinforce our Garden City identity. Eco streets will provide pleasant and attractive microclimates for people to enjoy and will result in a healthier environment.”

(Draft Central City Plan)
PILOT STREETS INITIATIVE

The work MIR demonstrated at the site scale led on to the bigger opportunity of working with the city’s Department of Public Work to develop more extensive low impact development strategies for neighbourhood streetscapes in a project called the Pilot Streets Initiative.

“The Pilot Streets Initiative began as a city project for infrastructure replacement in the flood damaged neighbourhood of the Lower Ninth Ward. Make It Right (MIR) was invited to coordinate consultation and design services due to their pioneering success using pervious concrete as an alternative to traditional concrete and asphalt street paving. The project evolved into a highly collaborative multi-disciplinary effort to develop an innovative streetscape design within the flood-damaged MIR project site. The hope for the design is that it will result in a modular “kit of parts” that could be replicated citywide.

Objectives and Goals:
- Provide retention/detention for 10 year storm levels
- Regenerate local habitat & ecology
- Integrate greenspace for retention/detention
- Function with contiguous & non-contiguous lots
- Delineate short & long term maintenance requirements
- Minimize impervious surfaces
- Minimize energy used by municipal pumping stations
- Encourage alternative forms of transportation
- Reduce “heat island” effect through street-tree strategy

(Source: asla.org)
GPE BOX 5-8

GOOD PRACTICE EXAMPLE: MAIN STREET STREETSCAPE, GREENSBURG, KANSAS SUSTAINABLE STREETSCAPE (BNIM) | POST-TORNADO MAY 2007

GREENSBURG GREENTOWN MAIN STREET

The City of Greensburg, Kansas, is developing a downtown environment that provides a unique experience for residents and visitors. As one of the first major infrastructure projects in Greensburg since the EF-5 tornado destroyed the majority of the town in 2007, the Main Street Streetscape is a signature project and will help to sustain the momentum for rebuilding a model sustainable town. The Main Street streetscape has been designed by landscape architects at BNIM Architects who also lead the development of the Sustainable Comprehensive Master Plan (see GPE Box 4-2).

The Main Street project involves a number of sustainable streetscape features, including a water catchment system that captures and filters rainwater through bio-swales, rain gardens, and stores it underground in rain barrels for reuse in watering the plants and trees using drip irrigation. The streetscape also includes native planting that are aesthetically appealing, while working to cool the street and cleansing the water and air of pollutants. (Source: bnim.com)

FIGURE 5-15: GREENSBURG MAIN STREET. TOP: GREENSBURG MAIN STREET PRE-TORNADO. BOTTOM THREE: GREENSBURG’S MAIN STREET (POST-TORNADO) HAS BEEN TRANSFORMED INTO A MODEL STREET FOR SUSTAINABLE STREETSCAPE DESIGN
CHAPTER FIVE : THE LOCAL SCALE

OPEN SPACE AND ECOLOGICAL REGENERATION

Open space and ecological design is referring to landscape design that is mostly concerned with environmental wellbeing, although it will often affect social, cultural and economic wellbeing through provision of recreational open space, circulation and movement efficiency, and the contribution of environmental health to the resilience of a city. This type of landscape design is usually dealing with public space, so it is often led by the government or local authority and involves input from a wide variety of stakeholders and interest groups.

While the Council has not yet addressed plans for regenerating Canterbury’s ecological environments, my team ‘Landmarks’ in the 48 Hour Challenge were quick to address the potential of transforming the recently allocated “Red Zone” into a city to sea ecological, agricultural and recreational open space (see CRE Box 5-7).

To further demonstrate the capability of landscape architects in addressing such large scale ecological regeneration projects, I have selected an example of Kongjian Yu’s work in regenerating the Wolong Nature Reserve after it was severely damaged in the Sichuan earthquake, 2008. (see GPE Box 5-9)
The magnitude 7.9 Sichuan Earthquake in 2008 had widespread and devastating impacts on the Sichuan Province of China. Located near the epicentre of the earthquake is one of China’s most precious ecological habitats, the Wolong Nature Reserve for Giant Pandas. The reserve was severely damaged in the earthquakes leading to the temporary evacuation of the 150 highly endangered giant pandas while the reserve was restored. Much of the panda habitat was destroyed by mud-and landslides, which caused serious damage to the vegetation, including the bamboo that they feed on. About 20 percent of the natural vegetation in the valley was destroyed. The ecological recovery project was undertaken by the landscape architects at Turenscape who used landscape planning strategies to regenerate the panda habitat whilst also master planning for a large resettlement project for Wolong villagers, mostly farmers who lost their houses and farms. The landscape strategies in the new master plan are based on ecological principles.

Kongjian Yu, founder of Turenscape and Dean of the Graduate School of Landscape Architecture at Peking University, and his colleagues at both institutes have used the “Ecological Infrastructure approach” to restoring the regions habitat, and planning for its redevelopment. The earthquake has provided an opportunity to re-assess prior development and unplanned urbanization that impinged on and threatened the giant panda reserves in the Wolong area. The redevelopment of the urban and natural landscape is divided into three zones:

- Core Area – the primary habitats for the giant pandas.
- Buffer Zones – the areas around the core, which are potentially important for protecting the core habitat and creating linkages that connect two or more of the sources.
- Eco-tourism and resettlement areas – the most urbanized areas, which will house the region’s human population.

The Wolong Nature Reserve itself and its associated giant panda habitat and travel corridors have been identified as the core area and has now been designated as an ecological recovery area. Its restoration will be the first phase of the overall landscape master plan. The area will be returned to its natural ecological processes, enabling the restoration of the forest, natural vegetation, and bamboo that are critical to giant panda survival. The 2000 square kilometre site has a predominantly mountainous landscape. In this core area, human intervention will be eliminated and vegetation restoration will occur. The human urbanization that was previously in this experimental zone of the Wolong Nature Reserve will not be reconstructed due in part to the dangers associated with being so high in the mountains should another earthquake occur, but also because most of the previous development was informal and ill-planned. Villagers will therefore not be permitted to be re-build in this core area.

(Source: turenscape.com)
MEMORIAL LANDSCAPES

Symbolic, memorial landscapes are also important to strengthening a city's identity. Landscape design is frequently a means of creating places where people can go to pay their respects to the past. Embedded within landscapes are layers of history and memory, particularly those places that are seen as being associated with devastating or victorious events. Revealing and remembering these places and events is particularly significant to post disaster recovery (Tidball et al, 2010). Memorial design is often undertaken by landscape architects who use their creative ability to use the design and features of the landscape as a medium to provoke memory. In this way a memorial goes beyond an object, such as a statue or plaque to become a memorial place, an accessible physical space to remember and pay their respects to important events and loved ones that have gone before them. Memorial landscapes could occur in civic, neighbourhood or open space environments or throughout an entire city.

The Draft Central City Plan has indicated their plans to include an earthquake memorial in the reconstruction of the central city.

"A memorial is planned to honour the lives of those who died in Christchurch’s earthquakes and provide a place to pay respect. It needs to be of a scale to accommodate large gatherings and must reflect the international significance of the tragedy."

(Draft Central City Plan)

The following three case studies are of memorial landscapes in Japan and China that provide some inspiration for Canterbury’s earthquake memorial. They showcase a variety of work by landscape architects in this important application of meaningful landscape design.
HIROSHIMA MEMORIAL PARK

The location of the Hiroshima Memorial Park was once one of the busiest districts of Hiroshima that was destroyed by the atom bomb explosion in WWII. The hall of the Hiroshima National Peace Memorial for the Atomic Bomb Victims was built underground. To restore the landscape to its original condition, the man made park has been landscaped to for the upper part of the hall. The circular space of the ground level that constitutes the Peace Memorial Monument for the Victims has been designed as a sacral space in which visitors can solemnly experience the sacred atmosphere of the place.

(Braun, 2009)
SILENT CITY

For Tangshan, the layer of the 1976 earthquake will always be present, in the collective memory of its inhabitants and through its physical remains. The designers of Silent City, the Tangshan memorial park, proposed a monument that is omnipresent in the entire park, constituting one of its many layers. Juxtaposed to greenery, paths and daily life, remembrance becomes a natural part of the park. Throughout the park message stones, lanterns and the old ruins represent the relationship between grief and hope, black and white, past and future.

(Braun, 2009)
NAKASATO JUJI PROJECT

This memorial project consisted of a roadside public park in an agricultural region. While the project was not post-disaster recovery project, it represents a project that relates well to the Canterbury earthquake recovery. The site was previously occupied by an old house that had to be torn down as part of a road extension construction. Thematically, the design sought to memorialise the character and spirit of the demolished home as well as the other traditional houses in the area, and to capture the essence of the community. Much of the material used for the project was drawn from what was left of the demolished house. The construction includes spaces for local residents to plant flowers and grasses.

(Braun, 2009)
Landscape architects can help communities that wish to ‘build back better’ by offering them important knowledge, experience and design skills that are critical to long term regeneration of badly affected urban and natural environments. At the local scale, landscape architects should be involved in short term and long term recovery and regeneration through the practise of landscape design. In this practice they facilitate as experts in roles of program development, landscape analysis, stakeholder and community engagement, concept design, detailed design, planting plans and managing implementation of landscape projects.

International case studies have demonstrated that landscape architects are experts when it comes to sustainable landscape design and regeneration that promotes community resilience. The Greensburg Main Street case study has demonstrated the work of landscape architects in urban street regeneration; the Lower 9th Ward Sustainable Sites and Community Beyond Housing initiatives have demonstrated how landscape architects have been involved with designing residential and neighbourhood landscapes that are of the highest sustainability rating; while the San Francisco Embarcadero and Manchester’s Exchange Square have confirmed the capability of landscape architects in civic space regeneration. The New Orleans Lower 9th Ward case study has emphasised that post-disaster neighbourhood regeneration at the patch scale begins with acts of philanthropy and volunteerism. The Make It Right foundation encouraged landscape architects and other designers to be proactive in volunteering their expertise to affected communities, and this eventually paid off as the authorities came to realise the benefits of their engagement. This case study showed that in order for landscape architects to become engaged in patch scale recovery, they first have to demonstrate what it is they can offer. Landscape architects have since been funded by the New Orleans City Council to develop the Pilot Streets Project – a city wide strategy for implementing sustainable streets and storm water management practices within patches all over the city. While international case studies have shown us what we should be aiming to achieve with long term patch regeneration, no disaster recovery case studies demonstrated my theory that temporary, intermediate landscapes are perceived in a way that they contribute to long term regeneration.

It is too early in the recovery to know the level of landscape architect involvement in long term or permanent landscape design projects, although there is positive indication that local authorities are likely to engage landscape architects and other design professionals in landscape design projects within the Central City. The 48 Hour Design Challenge held by the Christchurch City Council produced a lot of potential concepts for patches of the central city, indicating the high quality, sustainable design is a priority for them. Furthermore, the draft Central City Plan has indicated in several cases, the latent need for landscape architects. Proposed river regeneration is likely to involve landscape architects, as well as memorial design and an international urban design competition which is planned to generate a new landscape concept for Cathedral Square. Involving landscape architects in long term regeneration projects therefore appears not to be the issue for Canterbury.
Instead, the issue is that with better support, landscape architects could potentially be doing more in the mean time with temporary landscape design that could contribute to and speed up their efforts in the future, while regenerating the frustrated community in the short term.

So far in the recovery, landscape architects in Christchurch have been actively engaged in roles of short term recovery at the patch scale. While most of their efforts at this scale have been voluntary so far, they have been an important player in the short term regeneration of many communities through offering their expertise in facilitation, creative design and sustainability. However their involvement is not sustainable and there is concern that both frustrations with getting permission from the council, and lack of funding will soon deter both communities and volunteers.

I strongly believe that particularly while there is so much momentum for temporary landscapes in Canterbury, now is the perfect opportunity for landscape architects to be seen as experts in the intermediate landscape and emphasise how temporary projects are an essential step in the process towards long term regeneration. There is enough relevant landscape architecture literature to support the argument for more emphasis on the intermediate landscape. However, I am yet to come across any studies that specifically relate this idea to disaster recovery. This would suggest that it could be a new area of the landscape architecture discipline to pursue in the future as a practical way in which they can contribute more effectively in the future to long term disaster recovery and regeneration at the patch scale. In the mean time, I believe landscape architects in Canterbury need to pick up on the already established momentum, and reinforce the argument for designing temporary landscapes at the local patch scale that contribute to the long term recovery and are therefore justified in the long term recovery budget.
THE ROLE OF LANDSCAPE ARCHITECTS IN EARTHQUAKE RECOVERY

CONCLUSIONS
The overall objective of this research has been to analyse the role of landscape architects in Canterbury’s earthquake recovery, with a focus on understanding their current role compared to their potential role in the recovery period. Research findings were intended to inspire landscape architects involved in the recovery whilst informing decision makers about the ways in which landscape architects can be most effectively engaged in the recovery period. Understanding the potential role of landscape architects in the Canterbury recovery has involved first developing an overview of issues involved in Canterbury’s earthquake recovery, addressing landscape architecture theory and literature, and identifying relevant international case studies that demonstrate the potential roles of landscape architects in addressing such issues before. The outcomes of the research methods have been effective in delivering a detailed analysis of the current role of landscape architects in the Canterbury earthquake recovery and demonstrating how they could potentially be more effectively engaged. Additionally, this research has revealed a variety of other important observations about why landscape architects are currently under utilised in disaster recovery, and how they could be better utilised in the future.

So, what is the role of landscape architects in disaster recovery? The incredibly broad nature of this research topic has lead to multiple conclusions about the role of landscape architects in disaster recovery. Summarised in the following sections are conclusions about the what the role of landscape architects has been in the past, what the role of landscape architects is currently in the Canterbury earthquake recovery, and what the potential role of landscape architects could be in the future.

THE ROLE OF LANDSCAPE ARCHITECTS IN DISASTER RECOVERY IN THE PAST

The initial review of disaster recovery literature undertaken at the beginning of this research project emphasised that in most disaster recovery cases, landscape architects and other urban planning specialists were greatly under utilised in emergency management practice, in both post-disaster recovery and pre-disaster mitigation. For many cities around the world that are located in hazard prone areas, emergency management practices are still failing to recognise the critical role of landscape architects in land-use planning and cooperating with nature as a means of hazard mitigation; and designing sustainable cities and communities that are more resilient to the effects of natural hazards. In more recent disasters, there is increasing recognition of the role of landscape architects when communities (and city decision makers) recognise the recovery as an opportunity to build back better. Unfortunately though not surprisingly, this tends only to be the case...
in wealthier, non-corrupt societies that are devastated by disaster. In poor countries that experience disaster, there is a prevailing trend for landscape architects to be totally excluded from the recovery period, unless they are proactive about becoming involved in the recovery (as seen in New Orleans with the Make It Right trust). This is an important issue to be addressed by landscape architects in the future but extends beyond the scope of this research.

Although landscape architects are increasingly engaged in disaster recoveries worldwide and have proven their role in facilitating a city or community to *build back better*; in large scale disasters the full potential of their role in the recovery period has still not been recognised. The role of landscape architects in previous disaster recoveries has been demonstrated by a variety of recovery activities and regeneration projects at various stages (and scales) of recovery, but they are not well represented in lead roles of strategic, holistic decision making and recovery process planning. No single disaster recovery of a similar scale and nature to Canterbury has been able to demonstrate the role of landscape architects across the spectrum of activities that landscape architects could make a critical contribution. At the root of this problem is their absence in holistic decision making, which is most often a consequence of current (non-collaborative) disaster governance structures. Only in smaller scale disasters that affect single communities (such as in Greensburg, Kansas, or Manchester City) have landscape architects played a critical role in leading the recovery process.

There are a number of possible reasons why landscape architects have typically been poorly recognised in roles of disaster recovery in the past. The field survey data revealed that most landscape architects believe their level of involvement is limited by politics and non-collaborative governance structures that are led by decision makers who do not prioritise sustainability principals or properly recognise the need for culturally and environmentally sensitive design. Many of the survey respondents highlighted the fact that landscape architecture is a poorly understood discipline and one that deserves greater interdisciplinary recognition, particularly in disaster recovery. Other respondents believed it was up to landscape architects to be more proactive, forthcoming and persistent with their contribution to aspects of disaster recovery. I agree with all of the reasons listed above, however through my research disaster recovery and emergency management literature I have found that current emergency management practice is one of the key factors influencing the role of landscape architects in disaster recovery. Emergency management has evolved out of civil defence and is more focussed on management of systems and procedures and on engineering practices for future mitigation, than on considering the ecological and cultural aspects of disaster recovery. Emergency managers are perhaps not familiar with the multifaceted nature of ecological and cultural wellbeing, and are unaware of how one might go about ensuring their longevity. For this reason they are also unlikely to be familiar with the ability of landscape architects to cope with these aspects in almost every phase of disaster management (except emergency response). Hence, I would suggest that it is the emergency management discipline that needs to be better informed of the potential role of landscape architects in post-disaster recovery and pre-disaster mitigation.
THE CURRENT ROLE OF LANDSCAPE ARCHITECTS IN CANTERBURY’S EARTHQUAKE RECOVERY

As emphasised by both the field survey, the literature, and observations of this research, it is a common perception that landscape architects are not as effectively engaged in the disaster recovery period as they should be. While their current role in the Canterbury recovery has been more active than in many international disaster recovery cases, their current level and type of involvement appears to match an international trend that: in wealthier societies (that experience a major disaster), landscape architects are sporadically engaged in post-disaster regeneration projects at various stages (and scales) of the recovery, but they are still poorly represented in critical roles of holistic decision making; strategic broad scale redevelopment (land-use) planning; collaborative recovery process planning; and developing recovery principals, objectives and priorities. As a result, the discipline of landscape architecture is currently under utilised in the recovery period following large scale disasters, leading to disaster recovery practice that fails to fully embrace the opportunity to build back better.

The level of landscape architect involvement in Canterbury’s recovery is relatively high compared to many recent disaster recovery cases. A strong representation of landscape architects and other urban specialists in the Christchurch City Council, as well as an active body of local landscape architects, has meant that their role in Canterbury’s recovery has been relatively active, particularly in roles of long term redevelopment planning at the community/district scale, and in landscape design concepts the local/site scale. At the community/district scale they have most often been contracted by the City Council to undertake master planning and structure planning exercises for a number of badly damaged communities, including the Central City. Their involvement at the local/site scale has been predominantly in voluntary roles of helping communities with temporary landscape design projects. However their absence in roles at the big picture/regional scale of recovery planning and decision making has meant they are only contracted to undertake activities that authorities and private stakeholders instruct them to do. They have been unable to influence critical decisions made in the early stages of recovery which has limited the opportunities presented by the recovery to rebuild and regenerate the wider city in a way that is more resilient and sustainable in the future. Furthermore, they have been unable to influence decisions made about the recovery strategy or process, resulting in top down decisions that do not fully recognise the importance of a more strategic approach to short term recovery solutions. So far this has restricted landscape architects in their ability to implement sustainable recovery principals and procedures that are critical to regenerating ecological, cultural, social and economic wellbeing in the long term.

THE POTENTIAL ROLE OF LANDSCAPE ARCHITECTS IN CANTERBURY’S EARTHQUAKE RECOVERY

Canterbury has an incredible opportunity to set the benchmark for good practice in earthquake recovery. However, to make the most of this opportunity, it is critical that landscape architects are more effectively engaged in roles of strategic decision making across a much broader spectrum of recovery activities. At the very least, landscape architects bring to the disaster recovery period, a holistic perspective,
strong principals based around cultural and environmental well being and the ability to find innovative solutions to cultural and biophysical problems across a range of spatial and temporal scales. At present, the full potential of the discipline in this role is not fully recognised in Canterbury’s recovery.

Landscape architects are well prepared to make the most of such a rare and sudden opportunity presented by disaster recovery. International best practice case studies has shown us that landscape architects are capable of helping a city ‘build back better’ after a major disaster. Their make a valuable contribution to every scale of disaster recovery, from regional scale strategies to local scale regeneration in both the short and long term. Case studies have demonstrated that landscape architects are most frequently address recovery issues with fast tracked and scaled up versions of general best practice (for landscape). In most cases landscape architects have simply made the most of the unique opportunity presented by the post-disaster situation to create sustainable, resilient, ecologically and culturally rich environments across a broad range of scales. They have also proven to be critical players in regenerating sense of place, cultural identity and places for remembering, the importance of which are emphasised in disaster recovery. During the early stages of recovery, landscape architects have proven themselves in roles of holistic damage assessment, taking into consideration not just the implications for landscape, but the impacts on ecological and cultural well being. In recovery planning and future mitigation activities they have demonstrated their role in strategic land-use planning, urban open-space design and ecological restoration to make communities and urban areas more resilient to the effects of natural hazards in the future.

While there are limited examples of landscape architects in roles of holistic decision making in the recovery period, there is still a valid argument that even recent disaster recovery decision making practice does not represent a good practice model for future cases, and there is still a prevailing need for a more collaborative approach a this scale of recovery planning. Exacerbated by the fact that many cities lack a pre-prepared recovery plan as part of their emergency management procedure, the involvement of landscape architects in disaster recovery planning is most frequently limited by the tension that exists between speed and deliberation. Disaster recovery planning literature frequently reinforces this tension, arguing that while speed is important, deliberation and collaboration over large scale recovery decisions is critical to ensuring objectives for holistic and sustainable disaster recovery are met. In the past, engaging landscape architects in effective roles of recovery has been paralysed by this conflict, with many decision makers prioritising speed over deliberated decision making and therefore short cutting the inclusion of landscape architects and other designers in the recovery process. I am suggesting that the landscape architecture discipline pursues a more critical role (both in professional practice and academia) in helping relieve this tension by developing an approach to recovery that emphasises the importance of an intermediate landscape; that is, a strategic approach that regenerates communities and environments in both the short term and the long term, contributing to a holistic, collaborative, sustainable recovery.
CHAPTER SIX: CONCLUSIONS

THE ROLE OF LANDSCAPE ARCHITECTS IN DISASTER MANAGEMENT

FIGURE 6-1: THE ROLE OF LANDSCAPE ARCHITECTS IN DISASTER MANAGEMENT. FROM THE FIRST DIAGRAM OF DISASTER MANAGEMENT IN THE FIRST CHAPTER (ABOVE), IT IS NOW CLEAR WHERE THE ROLE OF LANDSCAPE ARCHITECTS IS MOST EFFECTIVE IN DISASTER RECOVERY. IDEALLY THE ROLE OF LANDSCAPE ARCHITECTS BEGINS IN THE RESPONSE STAGE DURING THE RESTORATION PERIOD IN ROLES OF HOLISTIC PROBLEM ASSESSMENT AND STRATEGIC DECISION MAKING ABOUT SHORT TERM AND INTERMEDIATE ACTION PLANS. THEY ARE CRITICAL IN ROLES OF COMMUNITY ENGAGEMENT, DESIGN, PLANNING AND IMPLEMENTATION THROUGHOUT THE REPLACEMENT AND DEVELOPMENT RECONSTRUCTION PERIODS (RECOVERY AND REDUCTION STAGES OF DISASTER MANAGEMENT) AT ALL SCALES. THEIR INVOLVEMENT CONTINUES INTO THE READINESS STAGE IN ROLES OF HAZARD MITIGATION PLANNING, (PRE-DISASTER) STRATEGIC RECOVERY PLANNING, AND CONTINUING TO DESIGN (AND INFORM OUR COMMUNITIES ABOUT) RESILIENT CITIES AND COMMUNITIES, IN PREPARATION FOR THE NEXT MAJOR HAZARD OR CHANGE.
Some of the key lessons that I learned from this research were lessons that I did not specifically set out to find, particularly to do with issues of researching and comparing disaster recoveries. The first lesson I learned is that it is incredibly difficult to benchmark for best practice in disaster recovery as it is almost impossible to find two disaster recoveries that are comparable. Recoveries are influenced not only by the disaster types and physical impacts, but the scale, the population, the governance structures, the emergency management procedures, politics, economy, culture, community values and multiple other variables. What is considered as best practice in one country may not translate to best practice in another country. Therefore we can only learn from and adapt what is considered as good practice, as in most cases it is unrealistic to transfer best practice in disaster recovery activities and procedures.

Secondly, there are multiple ways to achieving similar outcomes, it is just the time frame that differs. Every city will ‘recover’ from a disaster, it is just the time frame (10 years or 70 years) that it takes to exceed its preexisting condition. A lot can happen in 50 years - a lot of government elections, ongoing environmental degradation trends, cultural adaptation, economic fluctuations. Thousands of disasters have affected cities throughout history and it is difficult to compare recovery progress when every city is at a different stage of their ‘recovery process’ and have to prioritise different issues their recovery. It is easy to be mislead into thinking one recovery practice example is a model for future recovery practice when in fact it happened ten years after the disaster event (as was the case in San Fransisco with the Embarcadero Promenade development). These is an important aspect to consider in comparative cases.

Thirdly, there are multiple factors contributing to the level of landscape architect involvement in recovery. Governance and politics certainly has a lot to do with it, but there are also factors to do with community awareness of the landscape architecture discipline; the strength, recognition, capabilities and specialisations of local landscape architects; differing backgrounds for individual landscape architects’ educations; the

In a summary of field survey results, landscape architects believe they are valuable contributors in disaster recovery because they:

- take a neutral, holistic, integrated approach to regenerating damaged communities and environments
- can offer a multidimensional view of the problem by being able to work across a variety of scales and understand multiple influencing factors
- have an ability to produce creative (graphical) visions and innovative solutions to integrating multiple objectives
- play an integrating, facilitating role between disciplines and the wider community
- are capable of facilitating the regeneration of more vibrant, sustainable, resilient communities
- are most sensitive to the needs of people and of the natural environment and the co-dependence of cultural and biophysical dimensions
- have an ability to reconcile what the land is dictating (referring to land use planning)
- understand the whole process of regeneration, not just what to do, but who can/should be involved, how best to take action and when to implement stages of construction
- are knowledgeable in urban regeneration, green infrastructure, urban ecology, and sustainable urban design practices that contribute to reconstructing a city that is more sustainable and resilient to future hazards and changes
- are concerned with regenerating sense of place, cultural identity and memory in our city, at a time when so much pre-existing character has been destroyed
size and number of landscape architecture companies; the strength of the local institute and the presence of strong individuals in decision making teams. An important lesson can be learned from the Make it Right trust in New Orleans, where design professionals did not wait to be approached; instead they were proactive in approaching the small community of the Lower 9th Ward and began working with them to help them regenerate their neighbourhood. While their role began within a non profit organisation, once the government recognised the positive results of their efforts, they became funded to develop a city wide strategy for storm water management and sustainable streets. The factors limiting and enabling landscape architect involvement is in fact a whole other participatory action research area that would be incredibly insightful for the discipline to pursue.

OPPORTUNITIES FOR FUTURE RESEARCH

Overall, I was surprised to learn that very little literature exists on the topic of landscape architecture roles in disaster recovery. In fact, landscape architecture and emergency management/disaster recovery literature rarely integrate with one another. For two closely related fields that share similar principles and processes for achieving similar objectives, there is a lot to be gained from more inter-disciplinary recognition. Within the small body of literature that does exist, disaster recovery cases are critiqued for excluding designers and mostly are recognised as having less focus on cultural and ecological considerations than on the recovery of the economy and built form/infrastructure. There is an obvious need for more landscape architect involvement in practice, however there is a lack of literature that exemplifies the roles of landscape architects in good practice disaster recovery. I am suggesting there is a huge opportunity for landscape architects to undertake more trans-disciplinary and participatory action research in disaster recovery and management to not only become more familiar with the disaster recovery practices, processes and issues, but familiarise other professions with the discipline of landscape architecture. There is a critical need to develop a more substantial body of landscape architecture literature on addressing the issues of disaster recovery. For example, as emphasised in chapter five and throughout this conclusion, I have identified the potential for landscape architects to specifically emphasise their role in disaster recovery by pursuing research in understanding and regenerating the intermediate landscape.

A FINAL WORD ON THE CRITICAL ROLE OF MASTER QUILTERS

As the master quilters, landscape architects have a obvious role to play in repairing the Canterbury patchwork quilt. Without their contribution to holistic decision making, let alone their expertise in designing the various patchwork arrangements and individual patch fabrics, the Canterbury’s patchwork quilt is at risk of losing both its distinctive character and quality that our present and future community values so highly. With thousands of individual patches now damaged and huge sections of the quilt ripped and torn, there is an unprecedented opportunity for the master quilters to rethink the overall patterns, colours and textures of the quilt to make them stronger and even more

“This may be our next challenge – to make more complex landscape planning [and landscape architecture] more readily understandable, in order to broaden public participation, and to improve decision making in support of a more equitable and sustainable future.”

Carl Steinitz

Steinitz, 2008: 74
distinctive than before. There is an opportunity to redesign and enhance multiple focal point arrangements of the patchwork, including the complex centre piece. There is an opportunity to replace old fabrics with beautiful high quality, durable fabrics that are both distinctive and harmonious in the wider patchwork.

There is an opportunity to regenerate the Canterbury landscape as a state of the art patchwork quilt that could be the envy of the world.

“In the face of unprecedented challenges (...), landscape architecture is now on the verge of change in the world. It is time for this profession to take the opportunity to position itself to play a key role in rebuilding a new Land of Peach Blossoms for a new society of urbanized, global and interconnected people.”

Kongjian Yu
REFERENCES


